UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAR 24 2011

MEMORANDUM

SUBJECT: Documentation of a Classic Emergency Removal Action at US Oil Recovery (US Oil Recovery property and affiliated MCC property), Pasadena, Texas, that occurred in November 2010.

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THRU: for Ragan Broyles, Associate Director
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TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

I. PURPOSE

This Memorandum confirms and documents the prior verbal authorization of an emergency removal action in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604, at the U.S. Oil Recovery (USOR) and MCC Recycling (MCC) properties (collectively, the Site), both located in Pasadena, Texas. This emergency removal action provided for the removal of the threat to human health and the environment posed by hazardous substances and pollutants in above ground storage tanks, totes, drums, roll-off containers, a retention pond, parking lots, containment areas, and secondary containment areas.

This action met the criteria for initiating a removal action under Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415. This action was initiated under the On-Scene Coordinator's (OSC's) P$250,000 authority, Chapter 14, Number 2, and subsequent Regional Delegation, R6-14-2, on July 2, 2010. Later on July 2, 2010, the Regional Removal Allowance Ceiling was raised by verbal approval from the Superfund Division Director to $1,100,000. In response to a second incident at this Site in November of 2010, the Regional Removal Allowance Ceiling was raised by verbal approval from the Superfund Division Director to $1,600,000. This action required less than twelve months and $2 million to complete.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS NO:	TXR000051540 (USOR property), and TXR000079409 (MCC property)
Category of Removal:	Classic Emergency Removal
Site ID NO:	A6X7

A. Site Description

1. Removal Site Evaluation

The Harris County Public Health and Environmental Services (HCPHES) contacted the National Response Center (NRC) and Environmental Protection Agency (EPA) On-Scene Coordinator (OSC) and requested assistance in stabilizing the US Oil Recovery (USOR) and MCC Recycling (MCC) properties in managing a large volume of contaminated waste water that was being released from the Site and draining to the adjacent Vince Bayou (*See* Attachment 1 for NRC Report 959001) on November 4, 2010. The OSC contacted the Texas Commission on Environmental Quality (TCEQ) for an additional preliminary assessment by the local point of contact. TCEQ monitored the two properties over the weekend and contacted the OSC requesting assistance in stabilizing a large volume of contaminated runoff water from the USOR and MCC properties on November 8, 2010.

USOR had performed municipal and industrial wastewater pretreatment of Class I and Class II wastewater, characteristically hazardous waste, used oil and oily sludges, and municipal solid waste. Historical inspections/investigations conducted by the HCPHES and the TCEQ have shown elevated levels of benzene and chlorinated solvents in some of the waste stored onsite.

The Receivership confirmed access to the USOR and MCC properties were still granted to the EPA and responders from the previous incident in July 2010. No other USOR or MCC representatives or employees were onsite or available in person to the responding EPA representatives prior to, during, or upon completion of the EPA response efforts other than the Receivership. The property had been abandoned by the owner and operators in June of 2010, prior to the court appointed Receivership in July of 2010.

The EPA activated the Superfund Technical Assessment and Response Team (START-3) and the Emergency Rapid Response Services (ERRS) contractors on November 8, 2010 to respond to the incident. Upon arrival at the property by the OSC and EPA contractors on November 9, 2010, there were visible signs of staining and containment overflows that could directly threaten the down gradient Vince Bayou. Site findings were consistent with those from

the July incident response (i.e. containments overflowing, low pH liquids released, etc.) with the only exception being the condition of the staged drums and totes in the warehouse, which were field screened, segregated, and staged appropriately prior to demobilization on August 2, 2010.

The USOR property includes 225 (25 cubic yard) roll-off containers, approximately 797 (55 gallon) drums, approximately 212 (300 to 400 gallon) totes, approximately 24 (1,000 to 30,000 gallon) above-ground storage tanks (AST's) in varying degrees of operability located outside on the north end of the property with secondary containments, an approximate 300,000 gallon capacity dual cell bioreactor in poor condition located on the northwest side of the property with approximately 3 to 4 feet of material (liquids, sludges, and solids) and structural damage (reportedly from March-April 2009), 2 (20,000 gallon) frac tanks in good condition, a large full retention pond on the west side of the property, and a parking lot with standing water between the office and the warehouse.

The MCC Recycling property operated out of the USOR property, but was located on both sides of Vince Bayou just southeast across the railroad tracks from USOR. The northeast section of MCC consisted of 2 clarifiers, 2 oxygen digesters, an oxygen activation sludge unit, an oxygen plant, a chlorination building, a lift station (1), a gravity thickener, an aerobic digester, a belt filter press building, a pump control room, and a chlorine contact tank (basin/concrete containment area). The southwest section of MCC consisted of a high rate trickling filter, an oil-water separator, a primary clarifier, a final clarifier, and lift stations (2). Additional fixtures are present at MCC but not listed (i.e. a documents building, etc.). No USOR or MCC representatives or employees were onsite or available to the responding EPA representatives prior to, during, or upon completion of the EPA response efforts with the only exception being the Receivership.

A site walk of the MCC property found conditions consistent with how the property was left following the July incident response (i.e. gates with locks, containments with freeboard, etc.) with the only exception being staining of the concrete at a seepage on the north corner of the chlorine contact tank (basin/concrete containment area) on the east side of Vince Bayou also draining into Vince Bayou.

2. Physical Location

The USOR and MCC Recycling properties are respectively located at 400 North Richey Street and 200 North Richey Street in Pasadena, Texas 77506 (*See* Attachment 2). The GPS location is Latitude: 29.7177400, Longitude: -95.2210530.

3. Site Characteristics

The Site includes a warehouse, retention pond, and several containment areas throughout. USOR and/or MCC received municipal and industrial Class I and Class II wastewater, characteristically hazardous waste, used oil and oily sludges, and municipal solid waste. The property is located in the City of Pasadena, which had a population of approximately 146,000 in July 2009. The population within 1 square mile of the Site, according to the 2000 Census, was 1,131. The MCC property borders commercial businesses on each side, but also is split into two by Vince Bayou. There are homes within 500 feet and 250 feet of the USOR and MCC properties, respectively.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant.

Preliminary assessments of the property on July 2, 2010 and again on November 9, 2010 identified the historic and on-going release of hazardous substances from a waste receiving property (USOR) and pretreatment property (MCC). Results from field screening and sample analyses indicate substances found in drums, totes, tanks, roll-off containers, the retention pond, secondary containments, runoff, and containments are hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. §9601(14) and 40 C.F.R. §302.4.

USOR containments (sumps 34, 35, and 36), AST's, and secondary containments were visibly overflowing following significant rain events in July and November of 2010. Per the Receivership, this occurred twice between early August and October 19, 2010. Additionally, overflow liquids drain into the parking lot of standing water and then down gradient into Vince Bayou. Field screening of the runoff from sumps 34, 35, and 36 indicated a pH less than 2. Samples collected from the sludge in the north tank farm measured benzene at 3.75 milligrams per Liter (mg/L) and methyl ethyl ketone at 0.695 mg/L. Hydrogen sulfide was measured in the north tank farm liquids shipped for disposal/fuels blending at over 2,000 ppm.

The MCC property had liquid runoff from the chlorine contact tank (basin/containment area). During the July 2010 incident response, analytical results from the seepage just outside the chlorine contact tank (WW02) measured acetone at 14,000 µg/L, benzene at 46.4 µg/L, toluene at 258 µg/L, ethyl benzene at 757 µg/L, methyl ethyl ketone at 198 µg/L, and xylene at 4,320 µg/L. The seepage sample was later confirmed to be originating from a faulty concrete reconfiguration in the chlorine contact tank (also referred to as the "Z-tank" due to the configuration) at the west corner. The sample was collected from an uncontrolled discharge with no property oversight.

Upon arrival at the USOR property for the November incident response, corrosive caustic drums and totes inside the warehouse were found damaged with contents spilled. Drums and totes were found segregated as they had been left following the July 2010 incident response, with the exceptions being the few drums and totes that had failed while the facility had no routine oversight or monitoring. The following table provides drum and tote assessment results from the July incident response, in which the drums and totes had been inventoried, field screened/ hazard characterization analyzed, segregated, and staged with signage:

Classification	Drum	Overpack	Tote	Count Subtotal
Combustible	45	1	9	55
Combustible, Corrosive Acid	2	-	-	2
Corrosive Acid	36	-	9	45
Corrosive Base	12	1	7	20
Empty	6	-	1	7
Flammable	339	16	62	417
Flammable, Corrosive Acid	4	-	2	6
Flammable, Corrosive Base	3	-	2	5
Non-corrosive	1	-	-	1
Non-flammable	128	4	40	172
Non-flammable, Non-corrosive	175	3	74	252
Not Tested	11	-	-	11
Potential H2S	-	-	1	1
Potential Oxidizer	-	-	5	5
	762	25	212	999

Further releases to the environment could have occurred if these chemical runoffs had not been contained and mitigated during these two incident response efforts. Without routine oversight and monitoring of the properties, there is a potential for future releases. Chemicals identified in drums, totes, tanks, roll-off containers, the retention pond, bioreactor, secondary containments, runoff, and containments were hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) and 40 C.F.R. § 302.4.

5. NPL Status

This Site is being evaluated for possible listing on the National Priorities List at the time of this Action Memorandum.

6. Maps, Pictures and Other Graphic Representations

Attachment 1:	NRC Report
Attachment 2:	Site location
Attachment 3:	Intentionally left blank; No Attachment 3.
Attachment 4:	ATSDR ToxFaq (Hydrogen sulfide)
Attachment 5:	International Chemical Safety Card – Hydrogen sulfide
Attachment 6:	Action Memorandum for July 2010 incident response with attachments

B. Other Actions to Date

1. Previous Actions

Prior to this Emergency Response Removal Action, EPA responded with contractors to a July 2010 incident (*See* Attachment 6).

Prior to the July 2010 incident response, EPA's involvement with USOR and MCC consisted of assigning an identification number to the USOR property in 2003 and conducting multimedia investigations in 2009. EPA Resource Conservation and Recovery Act (RCRA) and Water Enforcement Program Teams submitted an information request to USOR/MCC in January 2010, and issued a Cease and Desist Administrative Order for Clean Water Act (CWA) violations in April 2010. A RCRA Section 7003 Unilateral Administrative Order (UAO) was issued to USOR/MCC and the owner in June 2010.

2. Current Actions

No EPA response/removal actions are currently underway at the Site. The EPA continues to have discussions, site walks, and meetings with the Receivership, HCPHES, and TCEQ as needed to ensure thorough PRP/Receivership removal of all Site hazardous substances and remediation. Additionally, the EPA OSC will respond with contractors to contain and mitigate any additional hazardous substance discharges as needed, pending prior notification by the Receivership, and local TCEQ and/or HCPHES by the appropriate mechanisms.

C. State and Local Authorities' Roles

1. State and Local Actions to Date

According to a RCRA Subtitle C Identification form, the owner of USOR became the owner of the USOR property in January 2002 and made initial notification to TCEQ of regulated waste activity (used oil) in 2003. An EPA identification number was assigned in February 2003, and USOR made notifications as a hazardous waste transporter and conditionally exempt small quantity generator (CESQG) in 2004. TCEQ and HCPHES have jointly been investigating and/or responding to community complaints involving USOR since as early as December 2005 and MCC Recycling as early as 2009. In 2009, the owner of USOR acquired a decommissioned waste water treatment plant ("WWTP") located at 200 N Richey that was previously owned/operated by the City of Pasadena. MCC was established to pre-treat wastewater generated by USOR before discharge to the City of Pasadena publicly-owned treatment water ("POTW") property. A summary of TCEQ and HCPHES investigations and response activities are summarized below.

TCEQ Region 12 – Houston Office, Waste Section, Industrial and Hazardous Waste (IHW) Complaint Investigation and Case Development Investigations (CDI) conducted numerous investigations at USOR and MCC Recycling. Specific citations from TCEQ investigations are listed below:

- Failure to operate according to permits (i.e. not properly labeled operating units in accordance with TCEQ permits, failure to ensure containerized waste was stored in the appropriate locations).
- Failure to obtain RCRA permits for storing hazardous waste received from off-site generators.
- Failure to obtain a RCRA permit for the storage of hazardous waste in drummed waste, Bio-Reactor and roll-off boxes for greater than 90 days.
- Improper record keeping. Waste acceptance logs did not match waste disposal logs. During investigations waste acceptance logs would indicate specific volumes of material onsite that would not match what was actually onsite. Waste disposal logs could not be tracked back to waste acceptance logs.
- Improper material storage/ management (i.e. failed to limit storage of waste to only those wastes specified in the permit, failure to maintain adequate spacing between rows of double stacked containers, containers freely leaking, and not keeping containers closed or covered).

- Failed to prevent the discharge or imminent threat of discharge of industrial solid waste or municipal hazardous waste into or adjacent to the water in the state without obtaining specific authorization for such a discharge from the TCEQ.
- Failure to create/maintain adequate secondary containment around operating units.
- Failure to receive prior authorization from the TCEQ Air Permits Section to conduct aeration of wastewater containing volatile organics stored within the Bio-Reactor. USOR failed to modify the permit to reflect this change in operation.

From 2004 to 2009, Harris County HCPHES Environmental Public Health Division (EPH) documented violations regarding nuisance odors, wastewater discharges, contaminated storm water discharges, and failure to obtain an air permit. Since May 2009, EPH has documented numerous violations and expressed concerns regarding both properties. Violations included wastewater discharges, contaminated storm water discharges, odor nuisances, permit violations (USOR), lack of appropriate permits/authorizations (USOR/MCC), hazardous waste storage/processing, and spills. Concerns included structural integrity of tanks at both USOR (bioreactors, at least two storage tanks) and MCC (tanks and piping in general), concerns about fire hazards (property has been without water or electric at times), and concerns about additional spills and discharges to nearby Vince Bayou. EPH sought relief in the courts via a series of Temporary Restraining Orders and Temporary Injunctions issued in 2009 and 2010; however, most of the violations continued unabated despite the court's orders. In June 2010, an investigator from EPH observed that process equipment had been removed from both properties and also observed that many tanks, secondary containments, and containers were near to overflowing. On July 1 and November 4, EPH investigators observed discharges from the USOR property during and after a heavy rain. EPH notified the NRC of the observed discharges and the potential of hazardous substances within the discharge. On July 2, an EPH investigator reported that the property appeared to be abandoned.

2. Potential for Continued State/Local Response

The EPA, HCHPES, and TCEQ will continue to have involvement with the Site until the hazardous substances have been removed and disposed of properly. In the event the Site has future incidents prior to or during the removal and disposal of hazardous substances, the NRC and EPA hotlines will be notified accordingly by the local representatives.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415 of the NCP lists the factors to be considered in determining the appropriateness of a removal action. Paragraphs (b)(2)(i), (iii), (v), (vi), and (vii) directly apply to the conditions at the Site. Any one of these factors may be sufficient to determine whether a removal action is appropriate.

A. Threats to Public Health or Welfare

1. Exposure to Human Populations, Animals or the Food Chain, NCP Section 300.415(b)(2)(i);

The predominant threat to human populations, animals or the food chain was/is the potential for exposure by direct contact with acetone, benzene, ethyl benzene, toluene, xylene, methyl ethyl ketone, flammables, corrosives, and hydrogen sulfide in the containments, tanks, drums, totes, retention pond, bioreactor, and roll-off containers. Containments, roll-off containers, and the retention pond have overflowed into the parking lot and into Vince Bayou. The site is not operated or monitored daily or even weekly by anyone, and containers and containments can fault resulting in spillage into the parking lot and further into Vince Bayou. Spillage can also result in reactions and fire. Routes of exposure exist from direct contact with skin, eyes, and mucous membranes with the leaking material; inhalation of vapors emanating from the containers, containments, and AST's; and ingestion of runoff water and possibly Vince Bayou water.

Acetone is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure of moderate to high levels of acetone for a short time can cause skin irritation and damage, smell and respiratory irritation, burning eyes, headaches, light-headedness, confusion, increased pulse rate, effects on the blood, nausea, vomiting, unconsciousness and possibly coma, and shortening of the menstrual cycle in women. OSHA established the legal limit of 750 parts per million (ppm) of acetone in workroom air, which means that the workspace should have no more than an average of 750 ppm acetone over an 8-hour shift or 40-hour workweek. Acetone can be smelled by most people at concentrations of 100 to 140 ppm. Exposure pathways are inhalation, ingestion, and skin contact. Acetone was detected at 1,390 and 1,400 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou. Acetone was also detected in the water sample collected from the top 12 inches of water in the Retention Pond.

Benzene is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure of high levels of benzene can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness, while very high levels can result in death. Ingestion of benzene can cause vomiting, stomach irritation, dizziness, sleepiness, convulsions, rapid heart rate, and death. The most significant effects of benzene in the human body are on the blood and bone marrow, causing a decrease in red blood cells and excessive bleeding, affecting the immune system and increasing the chance for infection. Long term exposure to high levels of benzene in the air can cause leukemia. Benzene is listed as a carcinogen. EPA has established the maximum permissible level of benzene in drinking water at 5 parts per billion (ppb). OSHA established the legal limit of 1 ppm of benzene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact. Benzene was detected at 18.9 and 46.4 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou. Benzene was also detected at 3.75 mg/L in a sludge sample collected from an AST in the north tank farm.

Ethyl benzene is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure to high levels of ethyl benzene in air for short periods can cause eye and throat irritation. Higher levels can result in dizziness. Animals exposed to relatively low concentrations for several days to weeks have shown irreversible damage to the inner ear and hearing. Animals exposed to relatively low concentrations in the air for several months have shown kidney damage. Ethyl benzene is listed as a possible carcinogen. EPA has determined that exposure to Ethyl benzene in drinking water at concentrations of 30 ppm for 1 day or 3 ppm for 10 days is not expected to cause any adverse effects in a child. OSHA established the legal limit of 100 ppm of ethyl benzene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact. Ethyl benzene was detected at 57.5 and 757 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou.

Toluene is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure to low to moderate levels of toluene can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, loss of hearing, and loss of color vision. These symptoms usually disappear when exposure is stopped. Inhalation of high levels of toluene can cause light-headedness, dizziness, sleep, unconsciousness, and death. High levels may affect your kidneys. EPA has set a limit of 1 milligram per liter (mg/L) toluene in drinking water. OSHA established the legal limit of 200 ppm of toluene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact. Toluene was detected at 70 and 258 µg/L in samples collected from two uncontrolled releases at the MCC facility which were draining directly into Vince Bayou.

Xylene is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure of high levels of xylene for short or long periods of time can cause headaches, lack of muscle coordination, dizziness, confusion, and changes in one's sense of balance. Exposure to high levels for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys. It can cause unconsciousness and death. EPA has established a limit of 10 ppm Xylene in drinking water. OSHA established the legal limit of 100 ppm of Xylene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact. Xylenes were detected at 426 and 4,320 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou.

Methyl ethyl ketone (2 Butanone) is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure to methyl ethyl ketone can cause irritation of the nose, throat, skin, and eyes in humans. In animals, inhalation exposure to very high levels has caused birth defects, loss of consciousness, and death. Mice who breathed low levels for a short time showed temporary behavioral effects. Rats, which drank it, had nervous system effects. OSHA established the legal limit of 200 ppm of methyl ethyl ketone in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact. Methyl ethyl ketone was detected at 203 and 198 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou. Methyl ethyl ketone was also detected at 0.695 mg/L in a sludge sample collected from an above-ground storage tank (AST) in the north tank farm.

Hydrogen sulfide is defined as a hazardous substance at 40 C.F.R. § 302.4. Hydrogen sulfide is a colorless gas with the characteristic odor of rotten eggs, and exposure can cause nasal symptoms, sore throat, cough, dyspnea, impaired lung functions (in asthmatics), and damage to olfactory epithelium in humans. At high concentrations, individuals may lose their ability to smell hydrogen sulfide, making it dangerous. Hydrogen sulfide meets the odor threshold in humans from 0.0005 to 0.3 ppm. OSHA established the legal limit of 50 ppm of Hydrogen sulfide for only one 10 minute exposure during an 8-hour shift, provided there are no other hydrogen sulfide exposures. OSHA also established a 20 ppm ceiling concentration for hydrogen sulfide, but no 8-hour time weighted average. The exposure pathway is inhalation (*See* Attachments 4 and 5). Hydrogen sulfide was detected at over 2,000 ppm in the liquids recovered from the north tank farm and shipped to the disposal/fuels blending property, which warranted pretreatment at the facility prior to acceptance.

2. Hazardous Substances or Pollutants or Contaminants in Drums, Barrels, Tanks, or Other Bulk Storage Containers That May Pose a Threat of Release. NCP Section 300.415(b)(2)(iii);

Upon arrival at the Site by EPA during the July 2010 incident response, 797 (55 gallon) drums, 212 (300 to 400 gallon) totes, and 225 (25 cubic yard) roll-off containers were found staged throughout the Site in no particular organization. Containers (drums and totes) inside the warehouse had shown little indication of segregation, spacing, and stability. Upon field hazard characterization spot checking, many of the containers had labeling and markings other than the results of the field hazard characterization tests. Also, incompatibles (acids and bases) were found adjacent to each other. Corrosives ($10 < pH < 2$) were found in poor condition rusted metal drums. Flammables were found in drums labeled "Non-Regulated" or "Universal Waste" or no markings. Bulging drums were found throughout the warehouse. Many of the roll-off containers needed tarps, bows, poles, or repairs to prevent filling up and over flowing given a significant rain event, as what occurred on July 2, 2010.

Additionally, there are approximately 24 AST's (1,000 to 30,000 gallon) located on the north end of the USOR property. They contain various hazardous substances to include benzene (3.75 mg/L), methyl ethyl ketone (0.695 mg/L), corrosives ($10 < pH < 2$), and hydrogen sulfide. Some of the AST's have seepages, low level valves, and low level access points. It would be very easy for an untrained individual to walk into the north tank farm with no protection, open a valve a few feet off the ground, and become smothered and engulfed in hydrogen sulfide IDLH conditions (NIOSH IDLH is 100 ppm for hydrogen sulfide), liquids, and sludges. During the November 2010 incident response, hydrogen sulfide was measured in the north tank farm liquids shipped for disposal/fuels blending at levels ranging over 2,000 ppm.

3. Weather Conditions That May Cause the Release or Migration of Hazardous Substances, NCP Section 300.415(b)(2)(v);

Pasadena, Texas is subject to several types of extreme weather conditions that could cause the release of hazardous substances, such as flooding, hurricanes, high winds, and significant rain events, such as the one that occurred on July 2, 2010 raising Vince Bayou over its banks and covering North Richey Street with approximately 4 to 4.5 feet of water in a matter of only 3 hours. At the height of this rain event, Vince Bayou was only approximately 25 feet from the facility fence line. Significant rains cause overflow of the facility retention pond, containments, secondary containments, and unloading bays, which all contain hazardous substances (i.e. acetone, benzene, ethyl benzene, methyl ethyl ketone, toluene, xylene) and hazardous flammable and corrosive substances which drain to Vince Bayou approximately 25 to 150 feet away depending on the height of the Vince Bayou water level. The property is not

operated or monitored routinely, and a small release or leak can turn into a significant incident given extreme weather conditions.

4. Threat of Fire or Explosion, NCP Section 300.415 (b)(2)(vi);

Property tanks, drums, and totes contain flammable liquids, which when not managed appropriately could result in fire and/or explosion. Also with the Site not being operated or monitored routinely and the cold weather months, it's easily conceivable that persons might seek shelter from the cold weather in the facility structures. Untrained persons living amongst the containers and containments can set fires to warm themselves and inadvertently cause an uncontrolled fire. A fire could cause the release of hazardous substances at the Site and put responding fire fighters and neighboring businesses and residents in jeopardy of exposure.

5. Availability of Other Response Mechanisms, NCP Section 300.415(b)(2)(vii)

Upon a release, assistance would not or will not otherwise be provided in a timely basis, because the State of Texas, Harris County, and local governments do not have the resources to deal with a site of this complexity or magnitude. The Site was referred to the EPA by both TCEQ and HCPHES.

B. Threats to the Environment.

Runoff from the Site has the potential of contaminating the nearby Vince Bayou. A release of hazardous substances from this site would, therefore, impact the ecosystem of the drainage pathway offsite.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances, pollutants or contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

IV. ACTIONS TAKEN AND ESTIMATED COSTS

A. Actions Taken

1. Action Description

Access was requested initially and granted on July 2, 2010 and confirmed again on November 8, 2010 to initiate an EPA emergency assessment and response. This Site has had two EPA emergency response actions taken. The first was in July 2010, and the second in November 2010. This section of the Action Memorandum will focus primarily on the second action, since the first action was detailed in the initial Action Memorandum (*See* Attachment 6).

On November 8, 2010, the OSC was contacted by TCEQ and requested additional response assistance at the USOR properties to manage site runoff of contaminated storm water. EPA activated the Emergency Rapid Response Services (ERRS) contractors and Superfund Technical Assessment and Response Team (START-3) contractors to mobilize to the Site, contain offsite migration, mitigate the threat, and stabilize the Site. Containment actions include placement of booms and absorbent pads, use of pumps and vacuum trucks, and shipment of liquids for disposal/fuels blending. Mitigation actions include dropping containment content elevations to below overflow threat levels creating free-board or emptying completely, drum and tote management, and containment spray wash where needed or practical. Stabilization actions include reassessing and mitigating any potential threats at USOR and MCC.

Contaminated Site liquids that accumulated from overflowing containments, secondary containments, unloading bays, leaking drums and totes, and the parking lot were shipped offsite and disposed of at the Inter Gulf Corporation property in Pasadena, Texas. Some of the liquids were neutralized to bring the pH above pH 2.0 for disposal property acceptance. Some liquids required treatment to address significant hydrogen sulfide levels prior to disposal property acceptance. Drums and totes inside the warehouse were managed to continue appropriate segregation and containment. Containments and secondary containments that are open to the elements were emptied of liquids and sludges to minimize future overflow and offsite contamination. Sludges were sampled, transported, and disposed of accordingly at the Waste Management facility in Conroe, Texas and the US Ecology facility in Robstown, Texas, respectively.

All disposal was in accordance with EPA's Offsite Rule, 40 CFR § 300.440, and CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and all transportation was in accordance with Department of Transportation (DOT) rules and regulations.

Waste Stream	Disposal Facility	Incident Occurrence	Volume/Weight
Hazardous Sludge (Benzene)	US Ecology	Incident 2	11,751 gallons
Hazardous Sludge Washout (Benzene)	US Ecology	Incident 2	5 drums
Nonhazardous Sludge	Waste Management	Incident 2	89.36 tons
PPE/Solids/IDW	Waste Management	Incident 2	10 cubic yards
Nonhazardous liquids	Intergulf	Incident 1	394,000 gallons
Nonhazardous liquids	Intergulf	Incident 2	410,000 gallons
Nonhazardous liquids	Intergulf	Total	804,000 gallons

Other requirements under the Occupational Safety and Health Act (OSHA) of 1970, 29 U.S.C. § 651 et seq., and under the laws of a State with an approved equivalent worker safety program, as well as other applicable safety and health requirements, were followed. Federal OSHA requirements include, among other things, Hazardous Materials Operation, 20 CFR Part 1910, as amended by 54 Fed. Reg. 9317 (March 1989), all OSHA General Industry (29 CFR Part 1910) and Construction (29 CFR Part 1926) standards wherever they are relevant, as well as OSHA record keeping and reporting regulations, and the EPA regulations set forth in 40 CFR Part 300 relating to the conduct of work at Superfund sites.

2. Contribution to Remedial Performance

This action was consistent with any conceivable remedial responses at this site. The threat posed by this site during this incident was mitigated by controlling the source of contamination.

3. Description of Alternative Technologies

There were no alternative technologies which could be feasibly applied.

4. Applicable or Relevant and Appropriate Requirements (ARAR)

This removal action was conducted to eliminate the actual or potential exposure to hazardous substances, pollutants or contaminants to the environment, pursuant to CERCLA, 42 U.S.C. § 9601 et seq., and in a manner consistent with the National Contingency Plan (NCP), 40 CFR Part 300, as required at 33 U.S.C. §1321(c)(2) and 42 U.S.C. § 9605. Pursuant to 40 CFR

Part 300.415(j), fund-financed removal actions under CERCLA §104 and removal actions pursuant to CERCLA §106 shall, to the extent practicable considering the exigencies of the situation, attain the applicable or relevant and appropriate requirements under Federal environmental law including but not limited to, Toxic Substances Control Act (TCSA), 15 U.S.C. Section 2601 et seq., Clean Air Act (CAA), 42 U.S.C. Section 7401 et seq., Solid Waste Disposal Act (SWDA), 40 U.S.C. Section 6901 et seq., the Resource Conservation and Recovery Act RCRA, 42 U.S.C. Section 6901 et seq., Fish and Wildlife Coordination Act (FWCA) 16 U.S.C. Section 661 et seq., Hazardous Materials Transportation Act (HMTA) 49 U.S.C. Section 1801 et seq., or any promulgated standard, applicable or relevant and appropriate requirements, criteria or limitations under a State environmental or property citing law that is more stringent than any Federal standard, requirement, criteria, or limitation contained in a program approved, authorized or delegated by the Administrator and identified to the President by the State.

The DOT regulations contain requirements for transportation of hazardous materials, including hazardous wastes, to locations offsite. All hazardous substances, pollutants, or contaminants removed offsite for treatment, storage, or disposal were treated, stored, or disposed of at a property in compliance, as determined by EPA, pursuant to CERCLA Section 121(d)(3), 42 U.S.C. Section 121(d)(3), and the following rule: "Amendment to the National Oil and Hazardous Substances Pollution Contingency Plan; Procedures for Planning and Implementing Offsite Response Action: Final Rule," 58 FR 49200 (September 22, 1993), and codified at 40 CFR § 300.440."

Because onsite storage of hazardous wastes exceeded ninety days once the Site was transferred to the Receivership on August 2, 2010, RCRA storage requirements found at 40 CFR § 265 were adhered to regarding drum and tote staging, segregation, containment, and signage.

5. Schedule

There have been two incidents at the Site. The initial incident occurred in July of 2010, and the second in November of 2010.

During the first incident response, the EPA obtained access through written and verbal means from the PRP and PRP's counsel and initiated an emergency assessment and classic emergency removal action at the site on July 2, 2010. The final shipment of waste was conducted on July 30. Demobilization of onsite equipment and frac tanks was conducted on August 2, 2010.

The second incident response activation took place on November 8, 2010. Access was confirmed from the Receivership prior to arrival at the Site. Final shipment of waste was conducted on January 6, 2011, and the Site was secured and stabilized for demobilization on January 7, 2011.

In the event a new incident occurs at the Site; the PRP/Receivership, HCPHES, or TCEQ will contact the NRC and EPA hotlines appropriately.

B. Estimated Costs

Extramural Costs: Costs:	**Initial Ceiling:**	**Current Increase:**	**Current Ceiling:**
Regional Allowance Costs:			
ERRS	$1,100,000	$500,000	**$** 1,600,000
Other Extramural Costs Not Funded From the Regional Allowance:			
START	$200,000	$50,000	$ 250,000
Subtotal, Extramural Costs:	$1,300,000	$550,000	$ 1,850,000
Extramural Costs Contingency:			
7.5 %	-0-	$139,000	$ 139,000
TOTAL EXTRAMURAL COSTS:	**$1,300,000**	**$689,000**	**$ 1,989,000**

V. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If this response action was not taken at the Site, adjacent residents and workers would continue to be in danger of being exposed to hazardous substances that had and would continue to be released. As cited above, such exposure could possibly lead to adverse health effects including coma and death.

VI. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this Site.

VII. ENFORCEMENT

The total costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be **$ 3,020,800.42**.

(Direct Cost) + (Other Direct) + (42.63% of Total Direct [Indirect Cost) =
Estimated EPA Cost for a Removal Action

$ 1,989,000 + $128,927.80 + (42.63% x ($1,989,000 + $ 128,927.80)) = $3,020,800.42

Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2002. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only, and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor the deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

VIII. RECOMMENDATION

This decision document represents the selected removal action for the U.S. Oil Recovery (USOR) and MCC properties (collectively, the Site), both located in Pasadena, Texas, developed in accordance with CERCLA, 42 U.S.C. § 9601 et seq., and not inconsistent with the NCP, 40 C.F.R. Part 300. This decision is based on the administrative record for the Site.

Conditions at the Site met the criteria as defined by Section 300.415(b) (2) of the NCP, 40 C.F.R. § 300.415(b) (2), for a removal, and I recommend your formal approval of the documented removal action. The total project ceiling is **$ 1,989,000.00**. Of this, an estimated **$1,600,000** (without contingency) is from the Regional Removal Allowance.

Approved: Pamela Phillips Acting Date: 3/24/11
Samuel Coleman, P.E., Director
Superfund Division

Attachments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAR 24 2011

MEMORANDUM

SUBJECT: Documentation of a Classic Emergency Removal Action at US Oil Recovery (US Oil Recovery property and affiliated MCC property), Pasadena, Texas, that occurred in November 2010.

FROM: Adam Adams, On-Scene Coordinator (OSC)
Prevention and Response Branch, Removal Team (6SF-PR)

THRU: Ragan Broyles, Associate Director
Prevention and Response Branch (6SF-P)

TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

I. PURPOSE

This Memorandum confirms and documents the prior verbal authorization of an emergency removal action in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604, at the U.S. Oil Recovery (USOR) and MCC Recycling (MCC) properties (collectively, the Site), both located in Pasadena, Texas. This emergency removal action provided for the removal of the threat to human health and the environment posed by hazardous substances and pollutants in above ground storage tanks, totes, drums, roll-off containers, a retention pond, parking lots, containment areas, and secondary containment areas.

This action met the criteria for initiating a removal action under Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415. This action was initiated under the On-Scene Coordinator's (OSC's) P$250,000 authority, Chapter 14, Number 2, and subsequent Regional Delegation, R6-14-2, on July 2, 2010. Later on July 2, 2010, the Regional Removal Allowance Ceiling was raised by verbal approval from the Superfund Division Director to $1,100,000. In response to a second incident at this Site in November of 2010, the Regional Removal Allowance Ceiling was raised by verbal approval from the Superfund Division Director to $1,600,000. This action required less than twelve months and $2 million to complete.

Site ID NO: A6X7

Webster	Broyles/Petersen	Brown	Johnson	Quinones	Peycke
6SF-PR	6SF-P	6SF-TE	6SF-TE	6RC-S	6RC-S
3/9/11	3/9/11	3/7/11	3/3/11	3/2/11	03/16/11

to next page

ATTACHMENT 1

NRC REPORT

Documentation of a Classic Emergency Removal Action as US Oil Recovery
(US Oil Recovery facility and affiliated MCC facility
Pasadena, Texas Superfund Site

NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 959001

INCIDENT DESCRIPTION

*Report taken by: CIV DAVID DEDEAUX at 16:50 on 04-NOV-10
Incident Type: FIXED
Incident Cause: OTHER
Affected Area: VINCE BAYOU
Incident occurred on 04-NOV-10 at 13:30 local incident time.
Affected Medium: WATER

REPORTING PARTY

Name: JENNIFER WHEELER
Organization: HARRIS COUNTY PUBLIC HEALTH AND ENVIRONM
Address: 101 SO RICHEY
PASADENA, TX 77506

PRIMARY Phone: (713)2746355
Type of Organization: OTHER

SUSPECTED RESPONSIBLE PARTY

Name: KLAUS GENSSLER

Address: 400 NORTH RICHEY
PASADENA, TX 77506

INCIDENT LOCATION

400 NORTH RICHEY County: HARRIS
City: PASADENA State: TX Zip: 77506
NONE

RELEASED MATERIAL(S)

CHRIS Code: NCC Official Material Name: NO CHRIS CODE
Also Known As: VARIOUS CHEMICALS
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT
CHRIS Code: OUN Official Material Name: UNKNOWN OIL
Also Known As:
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER STATED THAT THERE WAS A RELEASE OF AN UNKNOWN AMOUNT OF WASTE WATER WITH OIL IN IT FROM AN UNKNOWN SOURCE THERE ARE ALLOT OF HAZARDOUS CHEMICALS STORED AT THIS SITE AS WELL.

SENSITIVE INFORMATION

INCIDENT DETAILS

Package: N/A
Building ID:
Type of Fixed Object: PRIVATE RESIDENCE
Power Generating Facility: UNKNOWN
Generating Capacity:
Type of Fuel:
NPDES:
NPDES Compliance: UNKNOWN
---WATER INFORMATION---
Body of Water: VINCE BAYOU
Tributary of: HOUSTON SHIP CHANNEL
Nearest River Mile Marker:
Water Supply Contaminated: UNKNOWN

IMPACT

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES: NO Hospitalized: Empl/Crew: Passenger:
FATALITIES: NO Empl/Crew: Passenger: Occupant:
EVACUATIONS:NO Who Evacuated: Radius/Area:

Damages: NO

Closure Type	Description of Closure	Hours Closed	Direction of Closure
Air:	N		
Road:	N		Major Artery:N
Waterway:	N		
Track:			

Environmental Impact: UNKNOWN
Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

NONE
Release Secured: NO
Release Rate:
Estimated Release Duration:

WEATHER

Weather: CLEAR, 75°F Wind speed: 15 MPH Wind direction: NE

ADDITIONAL AGENCIES NOTIFIED

Federal: NONE
State/Local: TCEQ, COUNTY
State/Local On Scene: NONE
State Agency Number: 20103557

NOTIFICATIONS BY NRC

CALCASUEU PARISH SHERIFF'S DEPT (CRIMINAL INTELLIGENCE UNIT)
04-NOV-10 17:05 (337)4913778
DHS NOC (NOC)

04-NOV-10 17:05 (202)2828114
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
04-NOV-10 17:05 (202)3661863
U.S. EPA VI (MAIN OFFICE)
04-NOV-10 17:07 (866)3727745 PETERSON
JFO-LA (COMMAND CENTER)
04-NOV-10 17:05 (225)3366513
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
04-NOV-10 17:05 (202)2829201
NOAA RPTS FOR TX (MAIN OFFICE)
04-NOV-10 17:05 (206)5264911
SECTOR HOUSTON-GALVESTON (COMMAND CENTER)
(713)6715113
TCEQ (MAIN OFFICE)
04-NOV-10 17:05 (512)2392507
TX GENERAL LAND OFFICE (MAIN OFFICE)
04-NOV-10 17:05 (281)4706597
TX GENERAL LAND OFFICE (TXGLO REGION 2)
04-NOV-10 17:05 (281)4706597
TEXAS STATE OPERATIONS CENTER (COMMAND CENTER)
04-NOV-10 17:05 (512)4242208

ADDITIONAL INFORMATION
CALLER STATED THAT THE EPA HAS BEEN ON THE SITE BEFORE.

*** END INCIDENT REPORT #959001 ***
Report any problems by calling 1-800-424-8802
PLEASE VISIT OUR WEB SITE AT http://www.nrc.uscg.mil

ATTACHMENT 2

SITE LOCATION

LEGEND

SITE BOUNDARY

APPROXIMATE PIPELINE LOCATION

N

0 180 360

SCALE IN FEET

TDD NO: TO-0001-10-07-02
NRC NO: 946255

US EPA REGION 6
START- 3

FIGURE 3
OVERALL SITE MAP
US OIL RECOVERY AND MCC FACILITY
PASADENA, HARRIS COUNTY, TEXAS

DATE	PROJECT NO	SCALE
JULY 2010	20406.012.001.0570.01	AS SHOWN

File: C:\Users\bondp\Desktop\GIS\FIG_3_OVERALL_SITE_MAP.mxd, 25-Jul-10 20:07, bondp

ATTACHMENT 3

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No Attachment 3

ATTACHMENT 4

ATSDR TOXFAQ (HYDROGEN SULFIDE)

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

HYDROGEN SULFIDE

CAS # 7783-06-4

Division of Toxicology and Environmental Medicine ToxFAQs™ July 2006

This fact sheet answers the most frequently asked health questions (FAQs) about hydrogen sulfide. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Hydrogen sulfide occurs naturally and is also produced by human activities. Just a few breaths of air containing high levels of hydrogen sulfide gas can cause death. Lower, longer-term exposure can cause eye irritation, headache, and fatigue. Hydrogen sulfide has been found in at least 35 of the 1,689 National Priorities List sites identified by the U.S. Environmental Protection Agency (EPA).

What is hydrogen sulfide?

Hydrogen sulfide (H_2S) occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. It can also result from bacterial breakdown of organic matter. It is also produced by human and animal wastes. Bacteria found in your mouth and gastrointestinal tract produce hydrogen sulfide from bacteria decomposing materials that contain vegetable or animal proteins. Hydrogen sulfide can also result from industrial activities, such as food processing, coke ovens, kraft paper mills, tanneries, and petroleum refineries.

Hydrogen sulfide is a flammable, colorless gas with a characteristic odor of rotten eggs. It is commonly known as hydrosulfuric acid, sewer gas, and stink damp. People can smell it at low levels.

What happens to hydrogen sulfide when it enters the environment?

- Hydrogen sulfide is released primarily as a gas and spreads in the air.
- Hydrogen sulfide remains in the atmosphere for about 18 hours.
- When released as a gas, it will change into sulfur dioxide and sulfuric acid.
- In some instances, it may be released as a liquid waste from an industrial facility.

How might I be exposed to hydrogen sulfide?

- You may be exposed to hydrogen sulfide from breathing contaminated air or drinking contaminated water.
- Individuals living near a wastewater treatment plant, a gas and oil drilling operation, a farm with manure storage or livestock confinement facilities, or a landfill may be exposed to higher levels of hydrogen sulfide.
- You can be exposed at work if you work in the rayon textiles, petroleum and natural gas drilling and refining, or wastewater treatment industries. Workers on farms with manure storage pits or landfills can be exposed to higher levels of hydrogen sulfide.
- A small amount of hydrogen sulfide is produced by bacteria in your mouth and gastrointestinal tract.

How can hydrogen sulfide affect my health?

Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 ppm) can cause a loss of consciousness and possibly death. In most cases, the person appears to regain consciousness without any other effects. However, in many individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. No health effects have been found in humans exposed to typical environmental concentrations of hydrogen sulfide (0.00011–0.00033 ppm).

HYDROGEN SULFIDE
CAS # 7783-06-4

Scientists have no reports of people poisoned by ingesting hydrogen sulfide. Pigs that ate feed containing hydrogen sulfide experienced diarrhea for a few days and lost weight after about 105 days.

Scientists have little information about what happens when you are exposed to hydrogen sulfide by getting it on your skin, although they know that care must be taken with the compressed liquefied product to avoid frost bite.

How likely is hydrogen sulfide to cause cancer?

Hydrogen sulfide has not been shown to cause cancer in humans, and its possible ability to cause cancer in animals has not been studied thoroughly. The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC), and the EPA have not classified hydrogen sulfide for carcinogenicity.

How can hydrogen sulfide affect children?

Children are likely to be exposed to hydrogen sulfide in the same manner as adults, except for adults at work. However, because hydrogen sulfide is heavier than air and because children are shorter than adults, children sometimes are exposed to more hydrogen sulfide than adults. Health problems in children who have been exposed to hydrogen sulfide have not been studied much. Exposed children probably will experience effects similar to those experienced by exposed adults. Whether children are more sensitive to hydrogen sulfide than adults or whether hydrogen sulfide causes birth defects in people is not known.

How can families reduce the risk of exposure to hydrogen sulfide?

Families can be exposed if they live near natural or industrial sources of hydrogen sulfide, such as hot springs, manure holding tanks, or pulp and paper mills. Families may want to restrict visits to these places.

Is there a medical test to show whether I've been exposed to hydrogen sulfide?

Hydrogen sulfide can be measured in exhaled air, but samples must be taken within 2 hours after exposure to be useful. A more reliable test to determine if you have been exposed to hydrogen sulfide is the measurement of thiosulfate levels in urine. This test must be done within 12 hours of exposure. Both tests require special equipment, which is not routinely available in a doctor's office. Samples can be sent to a special laboratory for the tests. These tests can tell whether you have been exposed to hydrogen sulfide, but they can not determine exactly how much hydrogen sulfide you have been exposed to or whether harmful effects will occur.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set an acceptable ceiling limit for hydrogen sulfide of 20 parts hydrogen sulfide per 1 million parts of air (20 ppm) in the workplace.

The National Institute for Occupational Safety and Health (NIOSH) recommends a 10-minute ceiling limit of 10 ppm in the workplace.

Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 2006. Toxicological Profile for Hydrogen Sulfide (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATTACHMENT 5

INTERNATIONAL CHEMICAL SAFETY CARD

(HYDROGEN SULFIDE)

International Chemical Safety Cards

HYDROGEN SULFIDE

ICSC: 0165

Sulfur hydride
H_2S
Molecular mass: 34.1
(cylinder)

ICSC # 0165
CAS # 7783-06-4
RTECS # MX1225000
UN # 1053
EC # 016-001-00-4
April 10, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Extremely flammable.	NO open flames, NO sparks, and NO smoking.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with water spray, powder, carbon dioxide.
EXPLOSION	Gas/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding) if in liquid state. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep cylinder cool by spraying with water.
EXPOSURE		AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
•**INHALATION**	Headache. Dizziness. Cough. Sore throat. Nausea. Laboured breathing. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. No mouth-to-mouth artificial respiration. Refer

	Symptoms may be delayed (see Notes).		for medical attention.
•SKIN	ON CONTACT WITH LIQUID: FROSTBITE.	Cold-insulating gloves.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.
•EYES	Redness. Pain. Severe deep burns.	Safety goggles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Remove all ignition sources. Ventilation. Remove gas with fine water spray. Personal protection: gas-tight chemical protection suit including self-contained breathing apparatus.	Fireproof. Separated from strong oxidants. Cool. Keep in a well-ventilated room. Install continous monitoring system with alarm.	F+ symbol T+ symbol N symbol R: 12-26-50 S: 1/2-9-16-36-38-45-61 UN Hazard Class: 2.3 UN Subsidiary Risks: 2.1

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0165	Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

HYDROGEN SULFIDE

ICSC: 0165

I

M

PHYSICAL STATE; APPEARANCE:
COLOURLESS COMPRESSED LIQUEFIED GAS , WITH CHARACTERISTIC ODOUR OF ROTTEN EGGS.

PHYSICAL DANGERS:
The gas is heavier than air and may travel along the ground; distant ignition possible. As a result of flow,

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation.

INHALATION RISK:
A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

EFFECTS OF SHORT-TERM EXPOSURE:

P **O** **R** **T** **A** **N** **T** **D** **A** **T** **A**	agitation, etc., electrostatic charges can be generated. **CHEMICAL DANGERS:** Heating may cause violent combustion or explosion. The substance decomposes on burning producing toxic gases (sulfur oxides). Reacts violently with strong oxidants, causing fire and explosion hazard. Attacks many metals and some plastics. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 10 ppm as TWA; 15 ppm as STEL; (ACGIH 2004). MAK: 5 ppm, 7.1 mg/m³; Peak limitation category: I(2); Pregnancy risk group: C; (DFG 2006). OSHA PEL†: C 20 ppm 50 ppm 10-minute maximum peak NIOSH REL: C 10 ppm (15 mg/m^3) 10-minute NIOSH IDLH: 100 ppm See: 7783064	The substance is irritating to the eyes and the respiratory tract . The substance may cause effects on the central nervous system . Exposure may result in unconsciousness. Exposure may result in death. Inhalation of gas may cause lung oedema (see Notes). The effects may be delayed. Medical observation is indicated. Rapid evaporation of the liquid may cause frostbite. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:**
PHYSICAL PROPERTIES	Boiling point: -60°C Melting point: -85°C Solubility in water, g/100 ml at 20°C: 0.5 Relative vapour density (air = 1): 1.19	Flash point: Flammable Gas Auto-ignition temperature: 260°C Explosive limits, vol% in air: 4.3-46
ENVIRONMENTAL DATA	The substance is very toxic to aquatic organisms.	

NOTES

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available. The substance blocks the sense of smell. The odour warning when the exposure limit value is exceeded is insufficient. Card has been partly updated in October 2004: see sections Occupational Exposure Limits, EU classification, Emergency Response. Card has been partly updated in October 2006: see sections Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-20G2TF or 20S1053

NFPA Code: H4; F4; R0;

ADDITIONAL INFORMATION

ICSC: 0165 **HYDROGEN SULFIDE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

ATTACHMENT 6

ACTION MEMORANDUM NO. I

(FOR JULY 2010 INCIDENT RESPONSE, WITH ATTACHMENTS

Documentation of a Classic Emergency Removal Action as US Oil Recovery
(US Oil Recovery facility and affiliated MCC facility
Pasadena, Texas Superfund Site

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAR 24 2011

MEMORANDUM

SUBJECT: Documentation of a Classic Emergency Removal Action at US Oil Recovery (US Oil Recovery property and affiliated MCC property), Pasadena, Texas.

FROM: Adam Adams, On-Scene Coordinator
Prevention and Response Branch, Removal Team (6SF-PR)

THRU: Ragan Broyles, Associate Director
Prevention and Response Branch (6SF-P)

TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

I. PURPOSE

This Memorandum confirms and documents the prior verbal authorization of an emergency removal action in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604, at the U.S. Oil Recovery (USOR) and MCC properties (collectively, the Site), both located in Pasadena, Texas. This emergency removal action provided for the removal of the threat to human health and the environment posed by hazardous substances and pollutants in above ground storage tanks, totes, drums, roll-off containers, a retention pond, parking lots, containment areas, and secondary containment areas.

This action met the criteria for initiating a removal action under Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415. This action was initiated under the On-Scene Coordinator's $250,000 authority on July 2, 2010. Later on July 2, 2010, the ceiling was raised by verbal approval from the Superfund Division Director to $1,100,000. This action required less than twelve months and $2 million to complete.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS NO:	TXR000051540 (USOR property), and TXR000079409 (MCC property)
Category of Removal:	Classic Emergency Removal
Site ID NO:	A6X7

A. Site Description

1. Removal Site Evaluation

The Texas Commission on Environmental Quality (TCEQ) and Harris County Public Health and Environmental Services (HCPHES) contacted the National Response Center (NRC) and Environmental Protection Agency (EPA) hotlines requesting assistance in stabilizing the USOR and MCC facilities in managing a large volume of hazardous substances and waste in preparation for a significant weather season, based on the historical Site knowledge and the near proximity to Vince Bayou (*See* Attachment 1 for NRC Reports 946255 and 946854) on July 1, 2010.

US Oil Recovery had performed municipal and industrial wastewater pretreatment of Class I and Class II wastewater, characteristically hazardous waste, used oil and oily sludges, and municipal solid waste. Historical inspections/investigations conducted by the HCPHES and the TCEQ have shown elevated levels of benzene and chlorinated solvents in some of the waste stored onsite.

The EPA Response Duty Officer was activated on the evening of July 1, 2010 to respond and assess the Site by the EPA Phone Duty Officer. Upon arrival at the property at approximately 10:30 p.m. the EPA representatives (EPA OSC and START-3 Contractor) conducted a perimeter walk assessment of immediate threats to adjacent properties and Vince Bayou, and made preparations to enter the site the following morning to conduct a more detailed evaluation.

The EPA representatives met with TCEQ and HCPHES representatives the morning of July 2, 2010 to conduct a perimeter walk while waiting on site access, due to the absence of any property personnel. The findings from the perimeter walk outside the Site fencing included a damaged fence on the northwest side of the property allowing public access, a large number of 25 cubic yard roll-off containers labeled "Hazardous Waste…'09" with damaged or inoperable tarps, and runoff water from the Site.

Access was obtained verbally from the property owner via cell phone and written from the property owner's counsel/representative offsite via email. No USOR or MCC representatives or employees were onsite or available in person to the responding EPA representatives prior to, during, or upon completion of the EPA response efforts.

Upon gaining access, the initial assessment identified at the USOR facility approximately 225 (25 cubic yard) roll-off containers with tarps in varying degrees of operability located

throughout the property, approximately 797 (55 gallon) drums in varying degrees of operability inside the warehouse, approximately 212 (300 to 400 gallon) totes in varying degrees of operability inside the warehouse, approximately 24 (1,000 to 20,000 gallon) above ground storage tanks (AST's) in varying degrees of operability located outside on the north end of the property with secondary containments with varying freeboard, an approximate 300,000 gallon capacity dual cell bioreactor in poor condition located on the northwest side of the property with approximately 3 to 4 feet of material (liquids, sludges, and solids) and structural damage (reportedly from March-April 2009), 2 (20,000 gallon) frac tanks in good condition, a large full retention pond on the west side of the property and a parking lot with standing water between the office and the warehouse.

Very shortly following the initial onsite walk, a significant rain event began, which caused an overflow of contents from the retention pond, many roll-off containers, tank farm secondary containments, and the parking lot, which drained east and northeast directly into Vince Bayou.

The MCC Recycling Property operated out of the USOR Property, but was located just southeast across the railroad tracks from USOR on both sides of Vince Bayou. The northeast section of MCC consisted of 2 clarifiers, 2 oxygen digesters, an oxygen activation sludge unit, an oxygen plant, a chlorination building, a lift station (1), a gravity thickener, an aerobic digester, a belt filter press building, a pump control room, and a chlorine contact tank (basin/concrete containment area). The southwest section of MCC consisted of a high rate trickling filter, an oil-water separator, a primary clarifier, a final clarifier, and lift stations (2). Additional fixtures are present at MCC but not listed (i.e. a documents building, etc.). No USOR or MCC representatives or employees were onsite or available to the responding EPA representatives prior to, during, or upon completion of the EPA response efforts.

A site walk of the MCC facility found gates on the bayou side of both sections of MCC with no locks, vegetation in distress (staining) from an uncontrolled release of liquids from piping in the pump control room on the west side of Vince Bayou down to Vince Bayou, and staining of the concrete at a seepage on the north corner of the chlorine contact tank (basin/concrete containment area) on the east side of Vince Bayou also draining into Vince Bayou.

2. Physical Location

The USOR and MCC Recycling facilities are respectively located at 400 North Richey Street and 200 North Richey Street in Pasadena, Texas 77506 (*see* attachment 2).

3. Site Characteristics

The Site includes a warehouse, retention pond, and several containment areas throughout. USOR and/or MCC received municipal and industrial Class I and Class II wastewater, characteristically hazardous waste, used oil and oily sludges, and municipal solid waste. The property is located in the City of Pasadena, which had a population of approximately 146,000 in July 2009. The population within 1 square mile of the site, according to the 2000 Census, was 1,131. The MCC facility borders commercial businesses on each side, but also is split into two by Vince Bayou. There are homes within 500 feet and 250 feet of the USOR and MCC properties, respectively.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant.

A preliminary assessment of the property identified the historic and on-going release of hazardous substances from a waste receiving property (USOR) and pretreatment property (MCC).

USOR roll-off containers, AST's, secondary containments, and the retention pond were visibly overflowing during the significant rain event that began on July 2. Additionally, overflow liquids drained from the parking lot and site down gradient into Vince Bayou. The roll-off containers were labeled "Hazardous Waste…'09", the liquids from the AST's and larger secondary containments had visible hydrocarbon contamination, the corrosive secondary containments field-tested pH levels were less than pH 2, and the retention pond 0 - 1 foot depth water sample (SWP) had an acetone detection at 8.2 micrograms per Liter (µg/L).

The MCC property had liquid runoff from the pump control room, lift station, and chlorine contact tank (basin/containment area). Analytical results from the pump control room (WW01) uncontrolled discharge measured acetone at 1,390 µg/L, Benzene at 18.9 µg/L, Toluene at 70 µg/L, Ethyl benzene at 57.5 µg/L, Methyl ethyl ketone at 203 µg/L, and Xylene at 426 µg/L. Analytical results from the seepage just outside the chlorine contact tank (WW02) measured acetone at 14,000 µg/L, Benzene at 46.4 µg/L, Toluene at 258 µg/L, Ethyl benzene at 757 µg/L, Methyl ethyl ketone at 198 µg/L, and Xylene at 4,320 µg/L. The seepage sample was later confirmed to be originating from a faulty concrete reconfiguration in the chlorine contact tank (also referred to as the "Z-tank" due to the configuration) at the west corner. Both samples were collected from uncontrolled discharges with no property oversight.

Drums and totes inside the USOR warehouse were found to be staged inappropriately (i.e. incompatibles staged side by side, corrosives staged in metal drums, missing lids and/or

rings, damaged, near falling, no access aisle, etc.). Drums and totes were assessed in detail following spot checks to confirm labeling accuracy. After several "Non-Haz/Universal Waste" labeled drums were found to have characteristics of flammability and/or pH levels less than pH 2 or greater than pH 10, each drum and tote was assessed, segregated according to hazard characteristic, and staged in appropriate over-packs if needed (i.e. pH 0 liquids found in metal drums were over-packed into poly over-packs, bulging drums were over-packed, etc.). A large percentage of the 797 drums and 212 totes assessed were originally mislabeled and staged inappropriately. The following table provides drum and tote assessment results:

Classification	Drum	Overpack	Tote	Count Subtotal
Combustible	45	1	9	55
Combustible, Corrosive Acid	2	-	-	2
Corrosive Acid	36	-	9	45
Corrosive Base	12	1	7	20
Empty	6	-	1	7
Flammable	339	16	62	417
Flammable, Corrosive Acid	4	-	2	6
Flammable, Corrosive Base	3	-	2	5
Non-corrosive	1	-	-	1
Non-flammable	128	4	40	172
Non-flammable, Non-corrosive	175	3	74	252
Not Tested	11	-	-	11
Potential H2S	-	-	1	1
Potential Oxidizer	-	-	5	5
	762	25	212	999

Further releases to the environment could have occurred if these chemical runoffs had not been contained and mitigated. Chemicals identified in drums, totes, tanks, roll-off containers, the retention pond, bioreactor, secondary containments, runoff and containments were hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) and 40 C.F.R. § 302.4.

5. NPL Status

This Site is not on and is not proposed for listing on the National Priorities List at the time of this Action Memorandum.

6. Maps, Pictures and Other Graphic Representations

Attachment 1:	NRC Reports
Attachment 2:	Site location
Attachment 3:	Intentionally left blank; No Attachment 3.
Attachment 4:	ATSDR ToxFaq (Acetone)
Attachment 5:	ATSDR ToxFaq (Benzene)
Attachment 6:	ATSDR ToxFaq (Ethyl benzene)
Attachment 7:	ATSDR ToxFaq (Toluene)
Attachment 8:	ATSDR ToxFaq (Xylenes, Total)
Attachment 9:	ATSDR ToxFaq (Methyl ethyl ketone / 2-Butanone)
Attachment 10:	EJ Report

B. Other Actions to Date

1. Previous Actions

Prior to this Emergency Response Removal Action, EPA's involvement with USOR and MCC consisted of assigning an identification number to the USOR facility in 2003 and conducting multimedia investigations in 2009. EPA Water and RCRA submitted an information request to USOR/MCC in January 2010, and issued a Cease and Desist AO for Clean Water Act (CWA) violations in April 2010. A RCRA 7003 UAO was issued to USOR/MCC and the owner in June 2010.

2. Current Actions

No EPA response/removal actions are currently underway at the site. The EPA continues to have discussions, site walks, and meetings with the Receivership, HCPHES, and TCEQ as needed to ensure thorough PRP/Receivership removal of all Site hazardous waste and remediation.

C. State and Local Authorities' Roles

1. State and Local Actions to Date

According to a RCRA Subtitle C Identification form, the owner of USOR became the owner of USOR in January 2002 and made initial notification to TCEQ of regulated waste activity (used oil) in 2003. An EPA identification number was assigned in February 2003, and

USOR made notifications as a hazardous waste transporter and conditionally exempt small quantity generator (CESQG) in 2004. TCEQ along with Harris County Public Health and Environmental Services (HCPHES) jointly have been investigating and/or responding to community complaints involving USOR since as early as December 2005 and MCC Recycling as early as 2009. In 2009, the owner of USOR acquired a decommissioned wastewater treatment plant ("WWTP") located at 200 N Richey that was previously owned/operated by the City of Pasadena. MCC was established to pre-treat wastewater generated by USOR before discharge to the City of Pasadena publicly-owned treatment water ("POTW") facility. A summary of TCEQ and HCPHES investigations and response activities are summarized below.

TCEQ Region 12 – Houston Office, Waste Section, Industrial and Hazardous Waste (IHW) Complaint Investigation and Case Development Investigations (CDI) conducted numerous investigations at USOR and MCC Recycling. Specific citations from TCEQ investigations are listed below:

- Failure to operate according to permits (i.e. not properly labeled operating units in accordance with TCEQ permits, failure to ensure containerized waste was stored in the appropriate locations).
- Failure to obtain RCRA permits for storing hazardous waste received from off-site generators.
- Failure to obtain a RCRA permit for the storage of hazardous waste in drummed waste, Bio-Reactor and roll-off boxes for greater than 90 days.
- Improper record keeping. Waste acceptance logs did not match waste disposal logs. During investigations waste acceptance logs would indicate specific volumes of material onsite that would not match what was actually onsite. Waste disposal logs could not be tracked back to waste acceptance logs.
- Improper material storage/ management (i.e. failed to limit storage of waste to only those wastes specified in the permit, failure to maintain adequate spacing between rows of double stacked containers, containers freely leaking, and not keeping containers closed or covered).
- Failed to prevent the discharge or imminent threat of discharge of industrial solid waste or municipal hazardous waste into or adjacent to the water in the state without obtaining specific authorization for such a discharge from the TCEQ.
- Failure to create/maintain adequate secondary containment around operating units.
- Failure to receive prior authorization from the TCEQ Air Permits Section to conduct aeration of wastewater containing volatile organics stored within the Bio-Reactor. USOR failed to modify the permit to reflect this change in operation.

From 2004 to 2009, Harris County HCPHES Environmental Public Health Division EPH documented violations regarding nuisance odors, wastewater discharges, contaminated storm water discharges, and failure to obtain an air permit. Since May 2009, EPH has documented numerous violations and expressed concerns regarding both properties. Violations included wastewater discharges, contaminated storm water discharges, odor nuisances, permit violations (USOR), lack of appropriate permits/authorizations (USOR/MCC), hazardous waste storage/processing, and spills. Concerns included structural integrity of tanks at both USOR (bioreactors, at least two storage tanks) and MCC (tanks and piping in general), concerns about fire hazards (facility has been without water or electric at times), and concerns about additional spills and discharges to nearby Vince Bayou. EPH sought relief in the courts via a series of Temporary Restraining Orders and Temporary Injunctions issued in 2009 and 2010; however, most of the violations continued unabated despite the court's orders. In June 2009, an investigator from EPH observed that process equipment had been removed from both properties and also observed that many tanks, secondary containments, and containers were near to overflowing. On July 1, EPH investigators observed discharges from the USOR property during and after a heavy rain. EPH notified the NRC of the observed discharges and the potential of hazardous waste within the discharge. On July 2, an EPH investigator reported that the property appeared to be abandoned.

2. Potential for Continued State/Local Response

The EPA, HCHPES, and TCEQ will continue to have involvement with the Site until the hazardous substances have been removed and disposed of properly. In the event the Site has future incidents prior to or during the removal and disposal of hazardous substances, the NRC and EPA hotlines will be notified accordingly by the local representatives.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415 of the NCP lists the factors to be considered in determining the appropriateness of a removal action. Paragraphs (b)(2)(i), (iii), (v), (vi), and (vii) directly apply to the conditions at the Site. Any one of these factors may be sufficient to determine whether a removal action is appropriate.

A. Threats to Public Health or Welfare

1. Exposure to Human Populations, Animals or the Food Chain, NCP Section 300.415(b)(2)(i);

The predominant threat to human populations, animals or the food chain was the potential for exposure by direct contact with acetone, benzene, ethyl benzene, toluene, total xylenes,

methyl ethyl ketone, flammables, and Corrosives in the containments, tanks, drums, totes, retention pond, bioreactor, and roll-off containers. Containments, roll-off containers, and the retention pond were visibly overflowing into the parking lots, which drained offsite into Vince Bayou. The drums and totes were not staged and managed appropriately and could easily have spilled (and reacted) into the parking lot and further into Vince Bayou. Routes of exposure existed from direct contact with skin, eyes, and mucous membranes with the leaking material; inhalation of vapors emanating from the drums and totes; and ingestion of runoff water and possibly Vince Bayou water.

Acetone is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure of moderate to high levels of acetone for a short time can cause skin irritation and damage, smell and respiratory irritation, burning eyes, headaches, light-headedness, confusion, increased pulse rate, effects on the blood, nausea, vomiting, unconsciousness and possibly coma, and shortening of the menstrual cycle in women. OSHA established the legal limit of 750 parts per million (ppm) of acetone in workroom air, which means that the workspace should have no more than an average of 750 ppm acetone over an 8-hour shift or 40-hour workweek. Acetone can be smelled by most people at concentrations of 100 to 140 ppm. Exposure pathways are inhalation, ingestion, and skin contact (*See* Attachment 4). Acetone was detected at 1,390 and 1,400 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou. Acetone was also detected in the water sample collected from the top 12 inches of water in the Retention Pond.

Benzene is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure of high levels of benzene can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness, while very high levels can result in death. Ingestion of benzene can cause vomiting, stomach irritation, dizziness, sleepiness, convulsions, rapid heart rate, and death. The most significant effects of benzene in the human body are on the blood and bone marrow, causing a decrease in red blood cells and excessive bleeding, affecting the immune system and increasing the chance for infection. Long term exposure to high levels of benzene in the air can cause leukemia. Benzene is listed as a carcinogen. EPA has established the maximum permissible level of benzene in drinking water at 5 parts per billion (ppb). OSHA established the legal limit of 1 ppm of benzene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact (*See* Attachment 5). Benzene was detected at 18.9 and 46.4 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou.

Ethyl benzene is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure to high levels of Ethyl benzene in air for short periods can cause eye and throat irritation. Higher levels can result in dizziness. Animals exposed to relatively low concentrations for several days to weeks have shown irreversible damage to the inner ear and hearing. Animals exposed to relatively low concentrations in the air for several months have shown kidney damage. Ethyl benzene is listed as a possible carcinogen. EPA has determined that exposure to Ethyl benzene

in drinking water at concentrations of 30 ppm for 1 day or 3 ppm for 10 days is not expected to cause any adverse effects in a child. OSHA established the legal limit of 100 ppm of benzene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact (*see* Attachment 6). Ethyl benzene was detected at 57.5 and 757 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou.

Toluene is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure to low to moderate levels of toluene can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, loss of hearing, and loss of color vision. These symptoms usually disappear when exposure is stopped. Inhalation of high levels of toluene can cause light-headedness, dizziness, sleep, unconsciousness, and death. High levels may affect your kidneys. EPA has set a limit of 1 milligram per liter (mg/L) toluene in drinking water. OSHA established the legal limit of 200 ppm of toluene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact (*See* Attachment 7). Toluene was detected at 70 and 258 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou.

Xylenes are defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure of high levels of xylene for short or long periods of time can cause headaches, lack of muscle coordination, dizziness, confusion, and changes in one's sense of balance. Exposure to high levels for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys. It can cause unconsciousness and death. EPA has established a limit of 10 ppm xylene in drinking water. OSHA established the legal limit of 100 ppm of xylene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact (*See* Attachment 8). Xylenes were detected at 426 and 4,320 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou.

Methyl ethyl ketone (2 Butanone) is defined as a hazardous substance at 40 C.F.R. § 302.4. Exposure to Methyl ethyl ketone can cause irritation of the nose, throat, skin, and eyes in humans. In animals, inhalation exposure to very high levels has caused birth defects, loss of consciousness, and death. Mice who breathed low levels for a short time showed temporary behavioral effects. Rats who drank it had nervous system effects. OSHA established the legal limit of 200 ppm of benzene in workplace air for an 8-hour shift and 40-hour work week. Exposure pathways are inhalation, ingestion, and skin contact (*See* Attachment 9). Methyl ethyl ketone was detected at 203 and 198 µg/L in samples collected from two uncontrolled releases at the MCC property which were draining directly into Vince Bayou.

2. Hazardous Substances or Pollutants or Contaminants in Drums, Barrels, Tanks, or Other Bulk Storage Containers That May Pose a Threat of Release. NCP Section 300.415(b)(2)(iii);

Upon arrival at the site by EPA, 797 (55 gallon) drums, 212 (300 to 400 gallon) totes, and 225 (25 cubic yard) roll-off containers were found staged throughout the site in no particular organization. Containers (drums and totes) inside the warehouse had shown little indication of segregation, spacing, and stability. Upon field hazard characterization spot checking, many of the containers had labeling and markings other than the results of the field hazard characterization tests. Also, incompatibles (acids and bases) were found adjacent to each other. Corrosives ($10 < pH < 2$) were found in poor condition rusted metal drums. Flammables were found in drums labeled "Non-Regulated" or "Universal Waste" or no markings. Bulging drums were found throughout the warehouse. Many of the roll-off containers needed tarps, bows, poles, or repairs to prevent filling up and over flowing given a significant rain event, as what occurred on July 2, 2010.

3. Weather Conditions That May Cause the Release or Migration of Hazardous Substances, NCP Section 300.415(b)(2)(v);

Pasadena, Texas is subject to several types of extreme weather conditions that could cause the release of hazardous substances, such as flooding, hurricanes, high winds, and significant rain events, such as the one that occurred on July 2, 2010 raising Vince Bayou over its banks and covering North Richey Street with approximately 4 to 4.5 feet of water in a matter of only 3 hours. At the height of this rain event, Vince Bayou was only approximately 25 feet from the property fence line. Significant rains cause overflow of the property retention pond, containments, secondary containments, and unloading bays, which all contain hazardous substances (i.e. Acetone, Benzene, Ethyl benzene, Methyl ethyl ketone, Toluene, Xylenes) and hazardous flammable and corrosive waste which drain to Vince Bayou approximately 25 to 150 feet away depending on the height of the Vince Bayou water level.

4. Threat of Fire or Explosion, NCP Section 300.415 (b)(2)(vi);

Property tanks, drums, and totes contain flammable liquids, which when not managed appropriately could result in fire and/or explosion. A fire could cause the release of hazardous substances at the site and put responding fire fighters and neighboring businesses and residents in jeopardy of exposure.

5. Availability of Other Response Mechanisms, NCP Section 300.415(b)(2)(vii)

Upon a release, assistance would not otherwise have been provided in a timely basis, because the State of Texas, Harris County, and local governments do not have the resources to deal with a site of this complexity or magnitude. The Site was referred to the EPA by both

TCEQ and HCPHES.

B. Threats to the Environment.

Runoff from the Site has the potential of contaminating the nearby Vince Bayou. A release of hazardous substances from this Site would, therefore, impact the ecosystem of the drainage pathway offsite.

IV. ENDANGERMENT DETERMINIATION

Actual or threatened releases of hazardous substances, pollutants or contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

V. ACTIONS TAKEN AND ESTIMATED COSTS

1. Action Description

The EPA requested access to initiate an emergency assessment and response from the PRP on the morning of July 2, 2010. Access was granted verbally by the property owner and written by the property owner's counsel on July 2, 2010. While waiting for written access, EPA and Superfund Technical Assistance and Response Team (START) contractors conducted an offsite perimeter walk of the properties and found several items of concern: no personnel onsite, gates unsecure and open, significant fence breakage, roll-off containers labeled "Hazardous Waste…'09" with no tarps, runoff from both facilities draining directly into Vince Bayou, stained vegetation, and significant containment structural damage.

Upon gaining access into the properties and conducting an onsite assessment, additional items of concern were noted: drums and totes in poor condition (i.e. rusty, ruptured, leaking, etc.), drums and totes with no access/spacing, drums and totes leaning, drums and totes comingled with incompatibles (i.e. acids and bases) with no separation/distance between, drums and totes with inaccurate labels/markings (i.e. flammables, acids and bases with labels/markings "Non-haz" or "Non-Regulated" or "Universal Waste"), metal drums containing corrosives ($10 < pH < 2$), and large volumes of liquids in containments, secondary containments, and unloading bay areas. Shortly after gaining access and conducting an onsite assessment, a significant rain event took place which caused overflowing of the retention pond, containments, secondary containments, roll-off containers, the unloading bays, and the parking lot into Vince Bayou.

On July 2, 2010 the EPA activated Emergency Rapid Response Services (ERRS) contractors to the site to contain offsite migration, mitigate the threat, and stabilize the Site. Containment actions include placement of booms and absorbent pads, use of pumps and 13 frac tanks, and establishing temporary staging areas for warehouse drums and totes following segregation. Mitigation actions include dropping containment content elevations to below overflow threat levels creating free-board or emptying completely, drum over-packing, drum and tote sampling and assessing by field hazard characterization analysis, drum and tote segregating and marking, securing roll-off containers (with tarps, bows, or poles as needed), and securing perimeter fencing (repaired section of damaged fence and replaced missing locks).

Contaminated site liquids that accumulated from overflowing roll-off containers, containments, secondary containments, the retention pond, unloading bays, leaking drums and totes, and the parking lot were shipped offsite and disposed of at the Inter Gulf Corporation property in Pasadena, Texas. A total of 71 loads totaling 393,500 gallons were shipped. Some of the liquids were neutralized to bring the pH above pH 2.0 for disposal property acceptance. Drums and totes inside the warehouse were marked according to field hazard characterization analyses, segregated, over-packed if necessary, and staged according to hazard class.

All disposal was in accordance with EPA's Offsite Rule, 40 CFR § 300.440, and CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and all transportation was in accordance with Department of Transportation rules and regulations.

Other requirements under the Occupational Safety and Health Act (OSHA) of 1970, 29 U.S.C. § 651 et seq., and under the laws of a State with an approved equivalent worker safety program, as well as other applicable safety and health requirements, were followed. Federal OSHA requirements include, among other things, Hazardous Materials Operation, 20 CFR Part 1910, as amended by 54 Fed. Reg. 9317 (March 1989), all OSHA General Industry (29 CFR Part 1910) and Construction (29 CFR Part 1926) standards wherever they are relevant, as well as OSHA record keeping and reporting regulations, and the EPA regulations set forth in 40 CFR Part 300 relating to the conduct of work at Superfund sites.

2. Contribution to Remedial Performance

This action was consistent with any conceivable remedial responses at this Site. The threat posed by this Site was mitigated by controlling the source of contamination.

3. Description of Alternative Technologies

There were no alternative technologies which could be feasibly applied.

4. Applicable or Relevant and Appropriate Requirements (ARAR)

This removal action was conducted to eliminate the actual or potential exposure to hazardous substances, pollutants or contaminants to the environment, pursuant to CERCLA, 42 U.S.C. §9601 et seq., and in a manner consistent with the National Contingency Plan (NCP), 40 CFR Part 300, as required at 33 U.S.C. §1321(c)(2) and 42 U.S.C. §9605. Pursuant to 40 CFR Part 300.415(j), fund-financed removal actions under CERCLA §104 and removal actions pursuant to CERCLA §106 shall, to the extent practicable considering the exigencies of the situation, attain the applicable or relevant and appropriate requirements under Federal environmental law including but not limited to, Toxic Substances Control Act (TCSA), 15 U.S.C. Section 2601 et seq., Clean Air Act (CAA), 42 U.S.C. Section 7401 et seq., Solid Waste Disposal Act (SWDA), 40 U.S.C. Section 6901 et seq., the Resource Conservation and Recovery Act RCRA, 42 U.S.C. Section 6901 et seq., Fish and Wildlife Coordination Act (FWCA) 16 U.S.C. Section 661 et seq., Hazardous Materials Transportation Act (HMTA) 49 U.S.C. Section 1801 et seq., or any promulgated standard, applicable or relevant and appropriate requirements, criteria or limitations under a State environmental or facility citing law that is more stringent than any Federal standard, requirement, criteria, or limitation contained in a program approved, authorized or delegated by the Administrator and identified to the President by the State.

The DOT regulations contain requirements for transportation of hazardous materials, including hazardous wastes, to locations offsite. All hazardous substances, pollutants, or contaminants removed offsite for treatment, storage, or disposal were treated, stored, or disposed of at a property in compliance, as determined by EPA, pursuant to CERCLA Section 121(d)(3), 42 U.S.C. Section 121(d)(3), and the following rule: "Amendment to the National Oil and Hazardous Substances Pollution Contingency Plan; Procedures for Planning and Implementing Offsite Response Action: Final Rule," 58 FR 49200 (September 22, 1993), and codified at 40 CFR § 300.440."

Because onsite storage of hazardous wastes may exceed ninety days once the Site was transferred to the PRP or Receiver on August 2, 2010, RCRA storage requirements found at 40 CFR § 265 were adhered to regarding drum and tote staging, segregation, containment, and signage.

5. Schedule

The EPA obtained access through written and verbal means from the PRP and counsel and initiated an emergency assessment and classic emergency removal action at the Site on July 2, 2010. The final shipment of waste was conducted on July 30. Demobilization of onsite equipment and frac tanks was conducted on August 2, 2010.

B. Estimated Costs

Extramural Costs:

ERRS	$	1,100,000
START	$	200,000
TOTAL EXTRAMURAL COSTS	**$**	**1,300,000**

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If this response action was not taken at the Site, adjacent residents and workers would continue to be in danger of being exposed to hazardous substances that had and would continue to be released. As cited above, such exposure could possibly lead to adverse health effects including coma and death.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this Site.

VIII. ENFORCEMENT

The total costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be **$ 1,928,956.65**.

(Direct Cost) + (Other Direct) + (42.63% of Total Direct [Indirect Cost) =
Estimated EPA Cost for a Removal Action

$ 1,300,000 + $52,420 + (42.63% x ($1,300,000 + $ 52,420)) = $1,928,956.65

Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2002. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only, and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor the deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

IX. RECOMMENDATION

This decision document represents the selected removal action for the U.S. Oil Recovery (USOR) and MCC properties (collectively, the Site), both located in Pasadena, Texas, developed in accordance with CERCLA, 42 U.S.C. § 9601 et seq., and not inconsistent with the NCP, 40 C.F.R. Part 300. This decision is based on the administrative record for the Site.

Conditions at the site met the criteria as defined by Section 300.415(b) (2) of the NCP, 40 C.F.R. § 300.415(b) (2), for a removal, and I recommend your formal approval of the documented removal action. The total project ceiling is **$ 1,928,956.65**. Of this, an estimated **$1,100,000** was expended from the Regional Removal Allowance.

Approved: _____ Date: 3/24/11
Samuel Coleman, P.E., Director
Superfund Division

Attachments

ATTACHMENT 1

NRC Reports

NATIONAL RESPONSE CENTER 1-800-424-8802
*** For Public Use ***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 946255

INCIDENT DESCRIPTION

*Report taken at 17:27 on 01-JUL-10
Incident Type: STORAGE TANK
Incident Cause: OTHER
Affected Area:
The incident was discovered on 01-JUL-10 at 15:00 local time.
Affected Medium: WATER VINCE BAYOU

SUSPECTED RESPONSIBLE PARTY

Organization: U.S.OIL RECOVERY
PASADENA, TX 77506

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

400 N. RICHEY County: HARRIS
City: PASADENA State: TX Zip: 77506

NW CORNER OF FACILITY TO VINCE BAYOU

RELEASED MATERIAL(S)

CHRIS Code: NCC Official Material Name: NO CHRIS CODE
Also Known As: HAZARDOUS WASTE
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

SUBJECT COMPANY HAS MANY VESSELS AND TANKS HOLDING HAZARDOUS WASTE. OVER 200 ROLL-OFF BOXES, SOME WITH HAZARDOUS WASTE LEAKING. TWO DETERIORATING BIOREACTORS WITH HAZARDOUS WASTE. MANY OF THE ROLL-OFFS ARE ACTIVELY LEAKING AND THE BIOREACTOR IS LEAKING AND IT'S CONTAINMENT WALL IS LEAKING. TODAY OUR INVESTIGATOR FOUND SHEET FLOW ACROSS A 20 FT. PATH AT THE NW CORMER OF THE FACILITY FLOWING FROM THE PROPERTY TO VINCE BAYOU. PASADENA CONTINUES TO RECEIVE HEAVY RAINFALL AND MORE SPILLAGE OFFSITE WILL OCCUR. THE SISTER FACITLIY AT 200 N. RICHEY ALSO HAS VESSELS LEAKING, OPEN, AND FULL TO THE TOP OF INDUSTRIAL WASTEWATER. VINCE BAYOU IS ALMOST UP TO THE FACILITIES AT THIS TIME.

INCIDENT DETAILS

Description of Tank:
Tank Above/Below Ground: ABOVE
Transportable Container: NO
Tank Regulated: YES
Tank Regulated By:
Tank ID:
Capacity of Tank:
Actual Amount:

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES:	NO	Hospitalized:	Empl/Crew:	Passenger:
FATALITIES:	NO	Empl/Crew:	Passenger:	Occupant:
EVACUATIONS:	NO	Who Evacuated:	Radius/Area:	

Damages: NO

Closure Type	Description of Closure	Length of Closure	Direction of Closure
Air:	N		

Road: N

Major Artery: N

Waterway: N

Track: N

Passengers Transferred: NO
Environmental Impact: YES/OTHER
Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

NONE
Release Secured: NO
Release Rate: 300 GALLON(S) per MINUTE
Estimated Release Duration:

WEATHER

Weather: RAINY, 87°F Wind speed: 10 MPH Wind direction: ESE

ADDITIONAL AGENCIES NOTIFIED

Federal: NONE SPECIFIED
State/Local: TCEQ
State/Local On Scene: UNKNOWN
State Agency Number: NONE SPECIFIED

NOTIFICATIONS BY NRC

DHS NOC (NOC)
01-JUL-10 17:56
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
01-JUL-10 17:56
U.S. EPA VI (MAIN OFFICE)
01-JUL-10 17:59
JFO-LA (COMMAND CENTER)
01-JUL-10 17:56
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
01-JUL-10 17:56
NOAA RPTS FOR TX (MAIN OFFICE)
01-JUL-10 17:56
SECTOR HOUSTON-GALVESTON (COMMAND CENTER)
01-JUL-10 18:00
TCEQ (MAIN OFFICE)
01-JUL-10 17:56
TX GENERAL LAND OFFICE (MAIN OFFICE)
01-JUL-10 17:56
TX GENERAL LAND OFFICE (TXGLO REGION 2)
01-JUL-10 17:56
TEXAS STATE OPERATIONS CENTER (COMMAND CENTER)
01-JUL-10 17:56
WEB REPORT (WEB REPORT SUBMITTER)
01-JUL-10 17:56

ADDITIONAL INFORMATION

NONE GIVEN.

*** END INCIDENT REPORT # 946255 ***

Submit Action Report | Spill Summary Report

NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 946854

INCIDENT DESCRIPTION

*Report taken by: CIV NICHAULUS THREATT at 14:02 on 07-JUL-10
Incident Type: FIXED
Incident Cause: OTHER
Affected Area: VINCE BAYOU
Incident was discovered on 07-JUL-10 at 11:00 local incident time.
Affected Medium: WATER VINCE BAYOU, SOIL

REPORTING PARTY

Name: ELIZABETH GUYNN

Organization: HARRIS COUNTY ENVIRONMENTAL HEALTH
Address: 107 NORTH MUNGER
PASADENA, TX 77506

PRIMARY Phone: (713)7408763
Type of Organization: LOCAL GOVERNMENT

SUSPECTED RESPONSIBLE PARTY

Name: UNKNOWN
Organization: NCC RECYCLING
PASADENA, TX 77506

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION

200 NORTH RICHEY RD. County: HARRIS

City: PASADENA State: TX Zip: 77506

INDUSTRIAL WASTE WATER TREATMENT

RELEASED MATERIAL(S)

CHRIS Code: OTH Official Material Name: OTHER OIL
Also Known As: HAZARDOUS WASTE (SLUDGE)
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT
CHRIS Code: OTH Official Material Name: OTHER OIL
Also Known As: OILY WATER
Qty Released: 0 UNKNOWN AMOUNT Qty in Water: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER IS REPORTING A RELEASE OF HAZARDOUS WASTE (SLUDGE) FROM A CHLORINE CONTACT UNIT ON THE NORTHWEST CORNER OF THE EAST PASS DUE TO INTENTIONAL DAMAGE TO THE CONTAINER. CALLER STATES THE DAMAGE WAS DONE POSSIBLY A OVER YEAR AGO. CALLER ALSO STATES THERE IS A DISCHARGE OF OILY WATER SPILLING FROM A CONCRETE PUMP HOUSE ON THE SOUTHWEST CORNER OF THE EAST PASS DUE TO AN UNKNOWN CAUSE AT THIS TIME.

SENSITIVE INFORMATION

INCIDENT DETAILS

Package: NO
Building ID:
Type of Fixed Object: WATER TREATMENT FACILITY
Power Generating Facility: NO
Generating Capacity:
Type of Fuel:
NPDES:
NPDES Compliance: UNKNOWN
---SHEEN INFORMATION---
Sheen Color: UNKNOWN
Sheen Odor Description: UNKNOWN SHEEN INFORMATION
Sheen Travel Direction:
Sheen Size Length:
Sheen Size Width:

---WATER INFORMATION---
Body of Water: VINCE BAYOU
Tributary of:
Nearest River Mile Marker:
Water Supply Contaminated: UNKNOWN

IMPACT

Fire Involved:	NO	Fire Extinguished:	UNKNOWN	
INJURIES:	NO	Hospitalized:	Empl/Crew:	Passenger:
FATALITIES:	NO	Empl/Crew:	Passenger:	Occupant:
EVACUATIONS:	NO	Who Evacuated:	Radius/Area:	
Damages:	NO			

Closure Type		Description of Closure	Hours Closed	Direction of Closure
Air:	N			
Road:	N			Major Artery: N
Waterway:	N			
Track:	N			

Passengers Transferred: NO
Environmental Impact: UNKNOWN
Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

NONE
Release Secured: NO
Release Rate:
Estimated Release Duration:

WEATHER

Weather: RAINY, 90□F

ADDITIONAL AGENCIES NOTIFIED

Federal: EPA
State/Local: TCEQ, HARRIS COUNTY
State/Local On Scene: TCEQ, HARRIS COUNTY, EPA
State Agency Number: NO REPORT #

NOTIFICATIONS BY NRC

DHS NOC (NOC)
07-JUL-10 14:22 (202)2828114
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
07-JUL-10 14:22 (202)3661863
U.S. EPA VI (MAIN OFFICE)
(866)3727745
JFO-LA (COMMAND CENTER)
07-JUL-10 14:22 (225)3366513
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
07-JUL-10 14:22 (202)2829201
NOAA RPTS FOR TX (MAIN OFFICE)
07-JUL-10 14:22 (206)5264911
SECTOR HOUSTON-GALVESTON (COMMAND CENTER)
(713)6715113
TCEQ (MAIN OFFICE)
07-JUL-10 14:22 (512)2392507
TX GENERAL LAND OFFICE (MAIN OFFICE)
07-JUL-10 14:22 (281)4706597
TX GENERAL LAND OFFICE (TXGLO REGION 2)
07-JUL-10 14:22 (281)4706597
TEXAS STATE OPERATIONS CENTER (COMMAND CENTER)
07-JUL-10 14:22 (512)4242208

ADDITIONAL INFORMATION

ADDITIONAL REPORTING PARTY: TCEQ, TERRY ANDREWS, 832-392-0437, 5425 POLK ST., SUITE H, HOUSTON, TX, 77023.

*** END INCIDENT REPORT # 946854 ***
Report any problems by calling 1-800-424-8802
PLEASE VISIT OUR WEB SITE AT http://www.nrc.uscg.mil

Close Window

ATTACHMENT 2

Site Location


N Richey St
W Richey St
Vince Bayou
TEXAS
LEGEND
SITE BOUNDARY
APPROXIMATE PIPELINE LOCATION
N
0
180
360
SCALE IN FEET
TDD NO: TO-0001-10-07-02
NRC NO: 946255
US EPA REGION 6
START- 3
FIGURE 3
OVERALL SITE MAP
US OIL RECOVERY AND MCC FACILITY
PASADENA, HARRIS COUNTY, TEXAS
DATE
JULY 2010
PROJECT NO
20406.012.001.0570.01
SCALE
AS SHOWN

ATTACHMENT 3

Intentionally Left Blank;

No Attachment 3

ATTACHMENT 4

ATSDR TOXFAQ (Acetone)

ATSDR Agency for Toxic Substances & Disease Registry

Acetone: ToxFAQs™

ToxFAQs™ for Acetone

(Acetona)

September 1995

CAS# 67-64-1

PDF Version, 94 KB

This fact sheet answers the most frequently asked health questions about acetone. For more information, you may call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY:

Exposure to acetone results mostly from breathing air, drinking water, or coming in contact with products or soil that contain acetone. Exposure to moderate-to-high amounts of acetone can irritate your eyes and respiratory system, and make you dizzy. Very high exposure may cause you to lose consciousness. This chemical has been found in at least 572 of 1,416 National Priorities List sites identified by the Environmental Protection Agency

top

What is this substance?

Acetone is a manufactured chemical that is also found naturally in the environment. It is a colorless liquid with a distinct smell and taste. It evaporates easily, is flammable, and dissolves in water. It is also called dimethyl ketone, 2-propanone, and beta-ketopropane.

Acetone is used to make plastic, fibers, drugs, and other chemicals. It is also used to dissolve other substances.

It occurs naturally in plants, trees, volcanic gases, forest fires, and as a product of the breakdown of body fat. It is present in vehicle exhaust, tobacco smoke, and landfill sites. Industrial processes contribute more acetone to the environment than natural processes.

top

What happens to acetone when it enters the environment?

- A large percentage (97%) of the acetone released during its manufacture or use goes into the air.

- In air, about one-half of the total amount breaks down from sunlight or other chemicals every 22 days.
- It moves from the atmosphere into the water and soil by rain and snow. It also moves quickly from soil and water back to air.
- Acetone doesn't bind to soil or build up in animals.
- It's broken down by microorganisms in soil and water.
- It can move into groundwater from spills or landfills.
- Acetone is broken down in water and soil, but the time required for this to happen varies.

top

How might I be exposed to acetone?

- Breathing low background levels in the environment.
- Breathing higher levels of contaminated air in the workplace or from using products that contain acetone (for example, household chemicals, nail polish, and paint).
- Drinking water or eating food containing acetone.
- Touching products containing acetone.
- For children, eating soil at landfills or hazardous waste sites that contain acetone.
- Smoking or breathing secondhand smoke.

top

How can acetone affect my health?

If you are exposed to acetone, it goes into your blood which then carries it to all the organs in your body. If it is a small amount, the liver breaks it down to chemicals that are not harmful and uses these chemicals to make energy for normal body functions. Breathing moderate- to-high levels of acetone for short periods of time, however, can cause nose, throat, lung, and eye irritation; headaches; light-headedness; confusion; increased pulse rate; effects on blood; nausea; vomiting; unconsciousness and possibly coma; and shortening of the menstrual cycle in women.

Swallowing very high levels of acetone can result in unconsciousness and damage to the skin in your mouth. Skin contact can result in irritation and damage to your skin.

The smell and respiratory irritation or burning eyes that occur from moderate levels are excellent warning signs that can help you avoid breathing damaging levels of acetone.

Health effects from long-term exposures are known mostly from animal studies. Kidney, liver, and nerve damage, increased birth defects, and lowered ability to reproduce (males only) occurred in animals exposed long-term. It is

top

How likely is acetone to cause cancer?

The Department of Health and Human Services, the International Agency for Research on Cancer, and the Environmental Protection Agency (EPA) have not classified acetone for carcinogenicity.

Acetone does not cause skin cancer in animals when applied to the skin. We don't know if breathing or swallowing acetone for long periods will cause cancer. Studies of workers exposed to it found no significant risk of death from cancer.

top

Is there a medical test to show whether I've been exposed to acetone?
Methods are available to measure the amount of acetone in your breath, blood, and urine. The test can tell you how much acetone you were exposed to, although the amount that people have naturally in their bodies varies with each person. The tests can't tell you if you will experience any health effects from the exposure.

The test must be performed within 2-3 days after exposure because acetone leaves your body within a few days. These tests are not routinely performed at your doctor's office, but your doctor can take blood or urine samples and send them to a testing laboratory.

top

Has the federal government made recommendations to protect human health?
The EPA requires that spills of 5,000 pounds or more of acetone be reported.

The Occupational Safety and Health Administration (OSHA) has set a maximum concentration limit in workplace air of 1,000 parts of acetone per million parts of air (1,000 ppm) for an 8-hour workday over a 40-hour week to protect workers. The National Institute for Occupational Safety and Health (NIOSH) recommends an exposure limit of 250 ppm in workplace air for up to a 10-hour workday over a 40-hour workweek.

top

Glossary
Carcinogenicity: Ability to cause cancer.

Evaporate: To change into a vapor or a gas.

Ingesting: Taking food or drink into your body.

Long-term: Lasting one year or longer.

top

References
Agency for Toxic Substances and Disease Registry (ATSDR). 1994. Toxicological Profile for acetone. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

top

Where can I get more information?
ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop F-32
Atlanta, GA 30333

Phone: 1-888-42-ATSDR (1-888-422-8737)
FAX: (770)-488-4178
Email: ATSDRIC@cdc.gov

top

- Page last reviewed: March 1, 2010
- Page last updated: March 1, 2010
- Content source: Agency for Toxic Substance and Disease Registry

Agency for Toxic Substances and Disease Registry, 4770 Buford Hwy NE,
Atlanta, GA 30341
Contact CDC: 800-232-4636 / TTY: 888-232-6348

ATTACHMENT 5

ATSDR TOXFAQ (Benzene)

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

BENZENE

CAS # 71-43-2

Division of Toxicology and Environmental Medicine ToxFAQs™ August 2007

This fact sheet answers the most frequently asked health questions (FAQs) about benzene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 1,000 of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is benzene?

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities.

Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, and nylon and other synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Natural sources of benzene include emissions from volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.

What happens to benzene when it enters the environment?

- Industrial processes are the main source of benzene in the environment.
- Benzene can pass into the air from water and soil.
- It reacts with other chemicals in the air and breaks down within a few days.
- Benzene in the air can attach to rain or snow and be carried back down to the ground.
- It breaks down more slowly in water and soil, and can pass through the soil into underground water.
- Benzene does not build up in plants or animals.

How might I be exposed to benzene?

- Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- Vapors (or gases) from products that contain benzene, such as glues, paints, furniture wax, and detergents, can also be a source of exposure.
- Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- Working in industries that make or use benzene.

How can benzene affect my health?

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death.

The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone

marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection.

Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries, but we do not know for certain that benzene caused the effects. It is not known whether benzene will affect fertility in men.

How likely is benzene to cause cancer?

Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. This is a cancer of the blood-forming organs. The Department of Health and Human Services (DHHS) has determined that benzene is a known carcinogen. The International Agency for Research on Cancer (IARC) and the EPA have determined that benzene is carcinogenic to humans.

How can benzene affect children?

Children can be affected by benzene exposure in the same ways as adults. It is not known if children are more susceptible to benzene poisoning than adults.

Benzene can pass from the mother's blood to a fetus. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How can families reduce the risks of exposure to benzene?

Benzene exposure can be reduced by limiting contact with gasoline and cigarette smoke. Families are encouraged not to smoke in their house, in enclosed environments, or near their children.

Is there a medical test to determine whether I've been exposed to benzene?

Several tests can show if you have been exposed to benzene. There is a test for measuring benzene in the breath; this test must be done shortly after exposure. Benzene can also be measured in the blood; however, since benzene disappears rapidly from the blood, this test is only useful for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites can be measured in the urine. The metabolite S-phenylmercapturic acid in urine is a sensitive indicator of benzene exposure. However, this test must be done shortly after exposure and is not a reliable indicator of how much benzene you have been exposed to, since the metabolites may be present in urine from other sources.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum permissible level of benzene in drinking water at 5 parts benzene per billion parts of water (5 ppb).

The Occupational Safety and Health Administration (OSHA) has set limits of 1 part benzene per million parts of workplace air (1 ppm) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Benzene (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATTACHMENT 6

ATSDR TOXFAQ (Ethyl benzene)

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

ETHYLBENZENE

CAS # 100-41-4

Division of Toxicology and Environmental Medicine ToxFAQs™ September 2007

This fact sheet answers the most frequently asked health questions (FAQs) about ethylbenzene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Ethylbenzene is a colorless liquid found in a number of products including gasoline and paints. Breathing very high levels can cause dizziness and throat and eye irritation. Breathing lower levels has resulted in hearing effects and kidney damage in animals. Ethylbenzene has been found in at least 829 of 1,689 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is ethylbenzene?

Ethylbenzene is a colorless, flammable liquid that smells like gasoline.
It is naturally found in coal tar and petroleum and is also found in manufactured products such as inks, pesticides, and paints.
Ethylbenzene is used primarily to make another chemical, styrene. Other uses include as a solvent, in fuels, and to make other chemicals.

What happens to ethylbenzene when it enters the environment?

- Ethylbenzene moves easily into the air from water and soil.
- It takes about 3 days for ethylbenzene to be broken down in air into other chemicals.
- In surface water, ethylbenzene breaks down by reacting with other chemicals found naturally in water.
- Ethylbenzene can move through soil into groundwater
- In soil, it is broken down by bacteria.

How might I be exposed to ethylbenzene?

- If you live in a city or near many factories or heavily traveled highways, you may be exposed to ethylbenzene in air.
- Releases of ethylbenzene into the air occur from burning oil, gas, and coal and from industries using ethylbenzene.
- Ethylbenzene is not often found in drinking water. Higher levels may be found in residential drinking water wells near landfills, waste sites, or leaking underground fuel storage tanks.
- Working in an industry where ethylbenzene is used or made.
- Using products containing it, such as gasoline, carpet glues, varnishes, and paints.

How can ethylbenzene affect my health?

Exposure to high levels of ethylbenzene in air for short periods can cause eye and throat irritation. Exposure to higher levels can result in dizziness.
Irreversible damage to the inner ear and hearing has been observed in animals exposed to relatively low concentrations of ethylbenzene for several days to weeks.
Exposure to relatively low concentrations of ethylbenzene in air for several months to years causes kidney damage in animals.

How likely is ethylbenzene to cause cancer?

The International Agency for Research on Cancer (IARC) has determined that ethylbenzene is a possible human carcinogen.

How can ethylbenzene affect children?

There are no studies evaluating the effects of ethylbenzene exposure on children or immature animals. It is likely that children would have the same health effects as adults. We do not know whether children would be more sensitive than adults to the effects of ethylbenzene.
We do not know if ethylbenzene will cause birth defects in humans. Minor birth defects and low birth weight have occurred in newborn animals whose mothers were exposed to ethylbenzene in air during pregnancy.

How can families reduce the risks of exposure to ethylbenzene?

❑ Use adequate ventilation to reduce exposure to ethylbenzene vapors from consumer products such as gasoline, pesticides, varnishes and paints, and newly installed carpeting.
❑ Sometimes older children sniff household chemicals, including ethylbenzene, in an attempt to get high. Talk with your children about the dangers of sniffing chemicals.
❑ Household chemicals should be stored out of reach of children to prevent accidental poisoning. Always store household chemicals in their original containers; never store them in containers that children would find attractive to eat or drink from, such as old soda bottles. Gasoline should be stored in a gasoline can with a locked cap.

Is there a medical test to determine whether I've been exposed to ethylbenzene?

Ethylbenzene is found in the blood, urine, breath, and some body tissues of exposed people. The most common way to test for ethylbenzene is in the urine. This test measures substances formed by the breakdown of ethylbenzene. Because these substances leave the body very quickly, this test needs to be done within a few hours after exposure occurs.

These tests can show you were exposed to ethylbenzene, but cannot predict the kind of health effects that might occur.

Has the federal government made recommendations to protect human health?

The EPA has determined that exposure to ethylbenzene in drinking water at concentrations of 30 ppm for 1 day or 3 ppm for 10 days is not expected to cause any adverse effects in a child.
The EPA has determined that lifetime exposure to 0.7 ppm ethylbenzene is not expected to cause any adverse effects.
The Occupational Health and Safety Administration (OSHA) has limited workers' exposure to an average of 100 ppm for an 8-hour workday, 40-hour workweek.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Ethylbenzene (Draft for Public Comment). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATTACHMENT 7

ATSDR TOXFAQ (Tuluene)

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

TOLUENE
CAS # 108-88-3

Division of Toxicology ToxFAQs™ February 2001

This fact sheet answers the most frequently asked health questions (FAQs) about toluene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to toluene occurs from breathing contaminated workplace air, in automobile exhaust, some consumer products paints, paint thinners, fingernail polish, lacquers, and adhesives. Toluene affects the nervous system. Toluene has been found at 959 of the 1,591 National Priority List sites identified by the Environmental Protection Agency

What is toluene?

Toluene is a clear, colorless liquid with a distinctive smell. Toluene occurs naturally in crude oil and in the tolu tree. It is also produced in the process of making gasoline and other fuels from crude oil and making coke from coal.

Toluene is used in making paints, paint thinners, fingernail polish, lacquers, adhesives, and rubber and in some printing and leather tanning processes.

What happens to toluene when it enters the environment?

❑ Toluene enters the environment when you use materials that contain it. It can also enter surface water and groundwater from spills of solvents and petrolieum products as well as from leasking underground storage tanks at gasoline stations and other facilities.

❑ When toluene-containing products are placed in landfills or waste disposal sites, the toluene can enter the soil or water near the waste site.

❑ Toluene does not usually stay in the environment long.

❑ Toluene does not concentrate or buildup to high levels in animals.

How might I be exposed to toluene?

❑ Breathing contaminated workplace air or automobile exhaust.

❑ Working with gasoline, kerosene, heating oil, paints, and lacquers.

❑ Drinking contaminated well-water.

❑ Living near uncontrolled hazardous waste sites containing toluene products.

How can toluene affect my health?

Toluene may affect the nervous system. Low to moderate levles can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, and

hearing and color vision loss. These symptoms usually disappear when exposure is stopped.

Inhaling High levels of toluene in a short time can make you feel light-headed, dizzy, or sleepy. It can also cause unconsciousness, and even death.

High levels of toluene may affect your kidneys.

How likely is toluene to cause cancer?

Studies in humans and animals generally indicate that toluene does not cause cancer.

The EPA has determined that the carcinogenicity of toluene can not be classified.

How can toluene affect children?

It is likely that health effects seen in children exposed to toluene will be similar to the effects seen in adults. Some studies in animals suggest that babies may be more sensitive than adults.

Breathing very high levels of toluene during pregnancy can result in children with birth defects and retard mental abilities, and growth. We do not know if toluene harms the unborn child if the mother is exposed to low levels of toluene during pregnancy.

How can families reduce the risk of exposure to toluene?

❑ Use toluene-containing products in well-ventilated areas.

❑ When not in use, toluene-containing products should be tightly covered to prevent evaporation into the air.

Is there a medical test to show whether I've been exposed to toluene?

There are tests to measure the level of toluene or its breakdown products in exhaled air, urine, and blood. To determine if you have been exposed to toluene, your urine or blood must be checked within 12 hours of exposure. Several other chemicals are also changed into the same breakdown products as toluene, so some of these tests are not specific for toluene.

Has the federal government made recommendations to protect human health?

EPA has set a limit of 1 milligram per liter of drinking water (1 mg/L).

Discharges, releases, or spills of more than 1,000 pounds of toluene must be reported to the National Response Center.

The Occupational Safety and Health Administration has set a limit of 200 parts toluene per million of workplace air (200 ppm).

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological Profile for Toluene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs™ Internet address is http://www.atsdr.cdc.gov/toxfaq.html . ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATTACHMENT 8

ATSDR TOXFAQ (Xylenes, Total)

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

XYLENE

CAS # 1330-20-7

Division of Toxicology and Environmental Medicine ToxFAQs™ August 2007

This fact sheet answers the most frequently asked health questions (FAQs) about xylene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to xylene occurs in the workplace and when you use paint, gasoline, paint thinners and other products that contain it. People who breathe high levels may have dizziness, confusion, and a change in their sense of balance. Xylene has been found in at least 840 of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is xylene?

There are three forms of xylene in which the methyl groups vary on the benzene ring: *meta*-xylene, *ortho*-xylene, and *para*-xylene (*m*-, *o*-, and *p*-xylene). These different forms are referred to as isomers.

Xylene is a colorless, sweet-smelling liquid that catches on fire easily. It occurs naturally in petroleum and coal tar. Chemical industries produce xylene from petroleum. It is one of the top 30 chemicals produced in the United States in terms of volume.

Xylene is used as a solvent and in the printing, rubber, and leather industries. It is also used as a cleaning agent, a thinner for paint, and in paints and varnishes. It is found in small amounts in airplane fuel and gasoline.

What happens to xylene when it enters the environment?

- Xylene evaporates quickly from the soil and surface water into the air.
- In the air, it is broken down by sunlight into other less harmful chemicals in a couple of days.
- It is broken down by microorganisms in soil and water.
- Only a small amount of it builds up in fish, shellfish, plants, and other animals living in xylene-contaminated water.

How might I be exposed to xylene?

- Using a variety of consumer products including gasoline, paint varnish, shellac, rust preventatives, and cigarette smoke. Xylene can be absorbed through the respiratory tract and through the skin.
- Ingesting xylene-contaminated food or water, although these levels are likely to be very low.
- Working in a job that involves the use of xylene such as painters, paint industry workers, biomedical laboratory workers, automobile garage workers, metal workers, and furniture refinishers.

How can xylene affect my health?

No health effects have been noted at the background levels that people are exposed to on a daily basis.

High levels of exposure for short or long periods can cause headaches, lack of muscle coordination, dizziness, confusion, and changes in one's sense of balance. Exposure of people to high levels of xylene for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys. It can cause unconsciousness and even death at very high levels.

ToxFAQs™ Internet address is http://www.atsdr.cdc.gov/toxfaq.html

How likely is xylene to cause cancer?

Both the International Agency for Research on Cancer (IARC) and the EPA have found that there is insufficient information to determine whether or not xylene is carcinogenic.

How can xylene affect children?

The effects of xylene have not been studied in children, but it is likely that they would be similar to those seen in exposed adults. Although there is no direct evidence, children may be more sensitive to acute inhalation exposure than adults because their narrower airways would be more sensitive to swelling effects.

Studies of unborn animals indicate that high concentrations of xylene may cause increased numbers of deaths, and delayed growth and development. In many instances, these same concentrations also cause damage to the mothers. We do not know if xylene harms the unborn child if the mother is exposed to low levels of xylene during pregnancy

How can families reduce the risks of exposure to xylene?

- ❑ Exposure to xylene as solvents (in paints or gasoline) can be reduced if the products are used with adequate ventilation and if they are stored in tightly closed containers out of the reach of small children.
- ❑ Sometimes older children sniff household chemicals in attempt to get high. Talk with your children about the dangers of sniffing xylene.
- ❑ If products containing xylene are spilled on the skin, then the excess should be wiped off and the area cleaned with soap and water.

Is there a medical test to determine whether I've been exposed to xylene?

Laboratory tests can detect xylene or its breakdown products in exhaled air, blood, or urine. There is a high degree of agreement between the levels of exposure to xylene and the levels of xylene breakdown products in the urine. However, a urine sample must be provided very soon after exposure ends because xylene quickly leaves the body. These tests are not routinely available at your doctor's office because they require special equipment.

Has the federal government made recommendations to protect human health?

The EPA set a limit of 10 parts xylene per million parts drinking water (10 ppm).

The Occupational Safety and Health Administration (OSHA) has set limits of 100 parts xylene per million parts of workplace air (100 ppm) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Xylene (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATTACHMENT 9

ATSDR TOXFAQ (Menthyl, Ethyl, Ketone/2-Butanone)

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

2-BUTANONE
CAS # 78-93-3

This fact sheet answers the most frequently asked health questions (FAQs) about 2-butanone. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to 2-butanone occurs in the workplace or from using consumer products containing it. Mild irritations of the eyes, nose, and throat were seen in people who breathed 2-butanone. This chemical has been found in at least 472 of 1,416 National Priorities List sites identified by the Environmental Protection Agency.

What is 2-butanone?

(Pronounced 2-byōō'tə-nōn)

2-Butanone is a manufactured chemical but it is also present in the environment from natural sources. It is a colorless liquid with a sharp, sweet odor. It is also known as methyl ethyl ketone (MEK).

2-Butanone is produced in large quantities. Nearly half of its use is in paints and other coatings because it will quickly evaporate into the air and it dissolves many substances. It is also used in glues and as a cleaning agent.

2-Butanone occurs as a natural product. It is made by some trees and found in some fruits and vegetables in small amounts. It is also released to the air from car and truck exhausts.

What happens to 2-butanone when it enters the environment?

- 2-Butanone enters the air during production, use and transport, and from hazardous waste sites.
- In air, one-half of it will break down from sunlight in 1 day or less.
- It dissolves in water and is broken down more slowly to a simpler chemical form in about 2 weeks.
- It does not stick to soil and will travel through the soil to the groundwater.
- Some of the 2-butanone in soil or water will evaporate into the air.
- It does not deposit in the bottom of rivers or lakes.
- It is not expected to concentrate in fish or increase in the tissues of animals further up the food chain.

How might I be exposed to 2-butanone?

- Breathing contaminated air from the production or use of paints, glues, coatings, or cleaning agents containing it.
- Breathing contaminated air near hazardous waste sites.
- Breathing cigarette smoke.
- Sniffing glues.
- Drinking contaminated water from wells near manufacturing or hazardous waste sites.
- Skin contact with the liquid during production or use.

How can 2-butanone affect my health?

The known health effects to people from exposure to 2-butanone are irritation of the nose, throat, skin, and eyes. No one has died from breathing 2-butanone alone. If 2-butanone is breathed along with other chemicals that damage health, it can increase the amount of damage that occurs.

Serious health effects in animals have been seen only at very high levels. When breathed, these effects included birth defects, loss of consciousness, and death.

When swallowed, rats had nervous system effects including drooping eyelids and uncoordinated muscle movements. There was no damage to the ability to reproduce.

Mice who breathed low levels for a short time showed temporary behavioral effects. Mild kidney damage was seen in animals that drank water with lower levels of 2-butanone for a short time.

There are no long-term studies with animals either breathing or drinking 2-butanone.

How likely is 2-butanone to cause cancer?

The Department of Health and Human Services has not classified 2-butanone as to its human carcinogenicity.

The International Agency for Research on Cancer and the Environmental Protection Agency (EPA) have also not classified 2-butanone as to its human carcinogenicity.

Two studies of workers exposed to 2-butanone and other chemicals did not find an increase in cancer. No animal studies are available that examine the potential for 2-butanone to cause cancer.

Is there a medical test to show whether I've been exposed to 2-butanone?

Tests are available to measure 2-butanone or its breakdown products in blood, breath, and urine. These tests are useful only to measure recent exposures because 2-butanone and its breakdown products leave the body rapidly. These tests are not usually performed at your doctor's office, but your doctor can take blood or urine samples and send them to a testing laboratory.

Has the federal government made recommendations to protect human health?

The EPA requires that discharges or spills into the environment of 5,000 pounds of more of 2-butanone be reported.

The Occupational Safety and Health Administration (OSHA) set an occupational exposure limit of 200 parts of 2-butanone per million parts of workplace air (200 ppm) for an 8-hour workday, 40-hour workweek.

The American Conference of Governmental Industrial Hygienists (ACGIH) and the National Institute for Occupational Safety and Health (NIOSH) have established the same guidelines as OSHA for the workplace.

Glossary

Carcinogenicity: Ability to cause cancer.

Evaporate: To change into a vapor or a gas.

ppm: Parts per million.

Long-term: Lasting one year or longer.

Short time: Lasting 14 days or less.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. Toxicological profile for 2-butanone. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

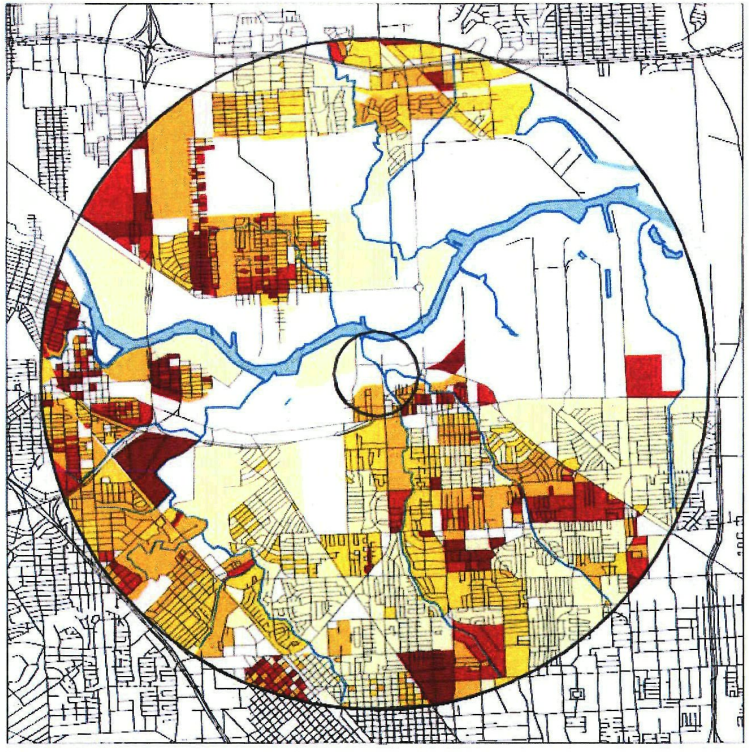
ATTACHMENT 10

EJ Report

Documentation of a Classic Emergency Removal Action at
(US Oil Recovery (US Oil Recovery facility and affiliated MCC facility),
Pasadena, Texas

US Oil Recovery, Pasadena, TX

Economic Status - Degree of Vulnerability (DVECO)



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miles
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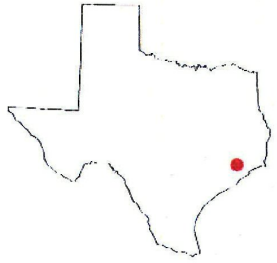
Percent Economically Stressed by Census Block Group
State Percentage = 23.6

- <= the State Percentage
- > the State Percentage, <= 1.33 times the State Percentage
- > 1.33 times the State Percentage, <= 1.66 times the State Percentage
- > 1.66 times the State Percentage, <= 2 times the State Percentage
- > 2 times the State Percentage

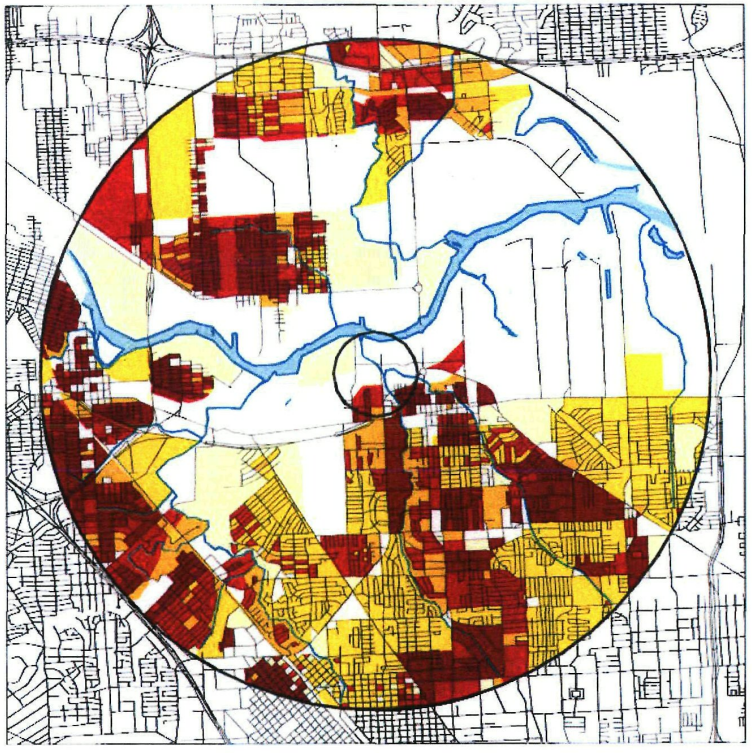


Potential Environmental Justice Index for Two Study Areas	1 Sq. Mile	50 Sq. Mile
Total Population	1131	167626
Population Ranking (PF)	3	3
Percent Minority	81.6%	75.2%
Minority Status (DVMAV)	4	3
Percent Economically Stressed	35.8%	28.6%
Economic Status (DVECO)	3	2
Environmental Justice Index	36	18

Data Sources and References: US Bureau of the Census, 2000 PL94-171, SF3 Data, and TIGER Files
US EPA Region 6, 1992. Computer Assisted Environmental Assessment Methodologies, Chapter V. Special Applications, Environmental Equity. Planning and Analysis Section, Management Division, Region 6 EPA, Dallas, Texas

US Oil Recovery, Pasadena, TX

Potential Environmental Justice Index (EJ)



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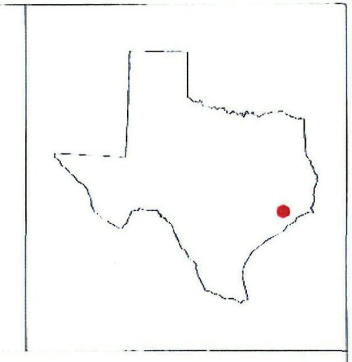
Criteria Ranked by Census Block
(DVECO * PF)

- 1 to 12
- 13 to 25
- 26 to 37
- 38 to 50
- 51 to 100



Potential Environmental Justice Index for Two Study Areas	1 Sq. Mile	50 Sq. Mile
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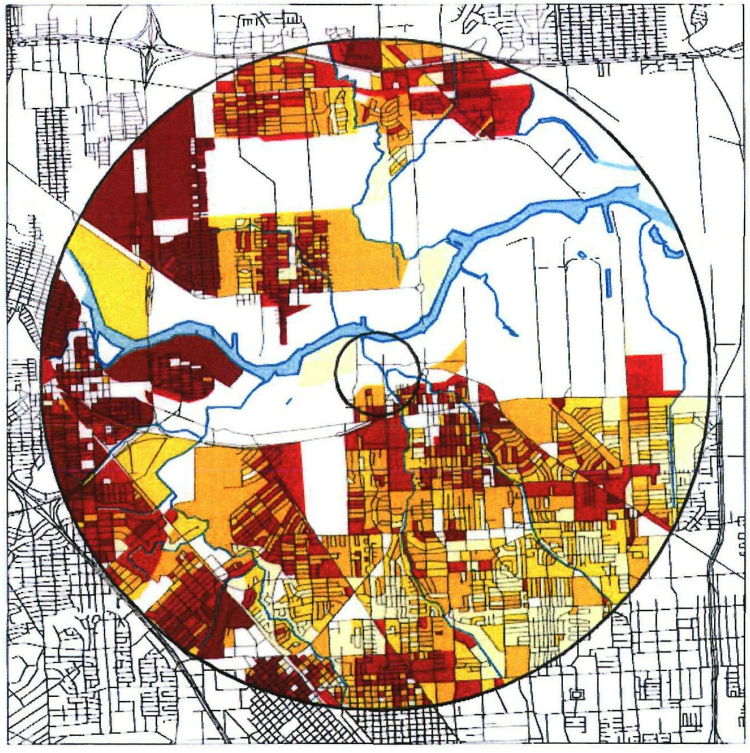
Data Sources and References: US Bureau of the Census, 2000 PL94-171, SF3 Data, and TIGER Files
US EPA Region 6, 1992. Computer Assisted Environmental Assessment Methodologies, Chapter V. Special Applications, Environmental Equity. Planning and Analysis Section, Management Division, Region 6 EPA, Dallas, Texas

US Oil Recovery, Pasadena, TX

Minority Status - Degree of Vulnerability (DVMAV)



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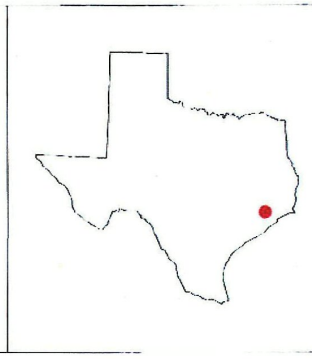
Percent Minority by Census Block
State Percentage = 47.6

- <= the State Percentage
- > the State Percentage, <= 1.33 times the State Percentage
- > 1.33 times the State Percentage, <= 1.66 times the State Percentage
- > 1.66 times the State Percentage, <= 2 times the State Percentage
- > 2 times the State Percentage



Potential Environmental Justice Index for Two Study Areas	1 Sq. Mile	50 Sq. Mile
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